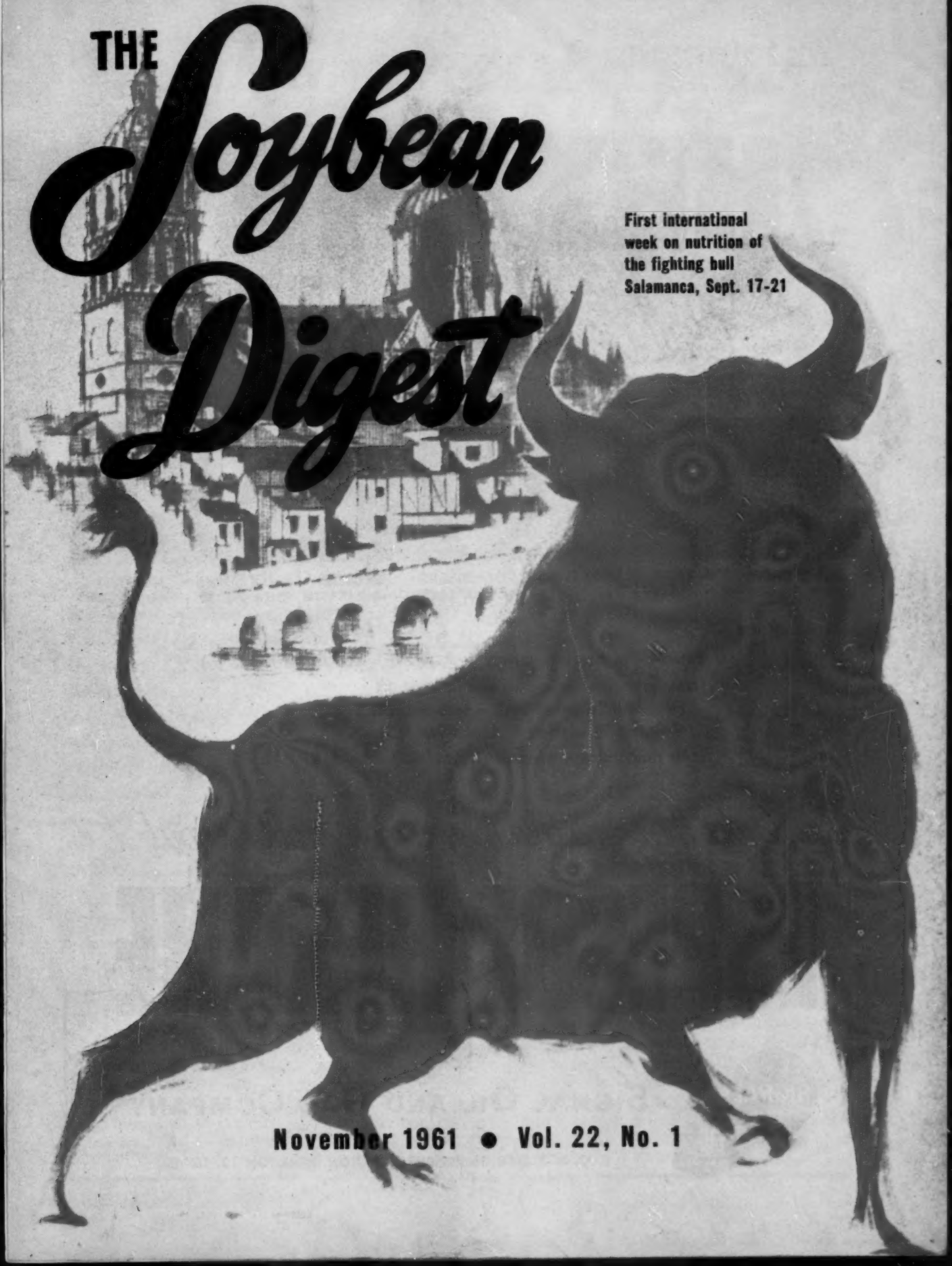
THE Soybean Digest



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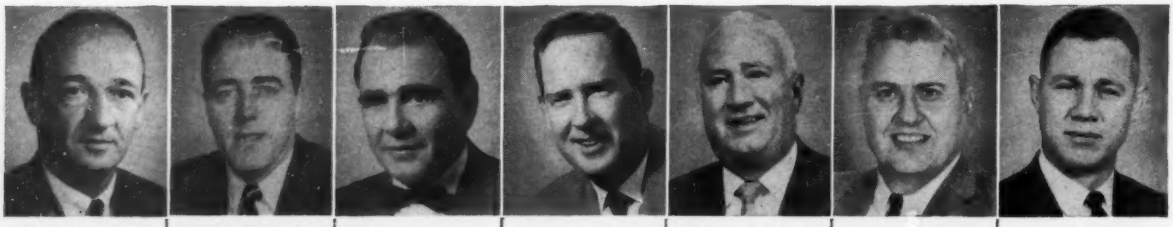

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THE Soybean Digest

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Official Publication of American Soybean Association and Soybean Council of America, Inc.

HUDSON, IOWA

Vol. 22 **November, 1961** **No. 1**

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THE SOYBEAN DIGEST

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safeguarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the members of the Association.

EDITOR'S DESK

. . . By GEO. M. STRAYER

THIS IS NO TIME FOR DREAMING In the Washington Digest column George Peter reports for you the thinking of USDA on soybean usage and markets during coming months. We hope that such markets do exist. Through the years there has been no one more optimistic than I on the future of the U. S. soybean industry.

But this is a time to face up to realities. This is a time not for dreaming but for planning. Do the cold hard facts justify the optimism? The weatherman made some adjustments on the crop size—and will make some more. But on what does USDA base a prediction of 175-million-bushel soybean exports? When supplies of peanuts, olive oil, copra and other competitive products are in greater supply than a year ago? Is USDA being realistic? I hope so. I fear not.

Predictions on domestic processing run to 425 million bushels in 1961-crop year. Is this realistic? Admittedly there has been announcement of USDA purchase of 400 million pounds of soybean oil for overseas relief feeding purposes. This is 300 million pounds more than last year—the production of 27 million bushels of soybeans. What happens to the meal? Export predictions are up 50,000 tons. That's the meal from slightly over 2 million bushels of soybeans. What about the meal from the other 25 million bushels? Will it depress domestic prices on meal?

Support prices on 1961-crop soybeans were increased approximately 25% over the 1960 figure. The crop is increased at least 150 million bushels. It is hard for a businessman who must meet payrolls and pay the month's bills to understand how you raise prices and increase sales at the same time. There may be some magic formula. If so, let's know about it. Let's be realistic in our dreaming.

LAST YEAR'S MARKETS WON'T REPEAT Each of us best remembers the most recent events. We remember what happened to soybean prices in early 1961—after most of the crop had left the hands of farmers. Last April's $3.25 soybeans have caused the building of great quantities of storage space, and the sale of a smaller percentage of the current soybean crop than in any recent year.

Some soybean processors have had difficulty buying sufficient soybeans to assure continued operation. They have only a few days' or weeks' supply on hand, cannot pay more than current prices for beans because the end product prices will not justify their doing so.

Figure it out for yourself. Oil at 10.5c per pound and meal at $50 per ton brings net return of $2.28 per bushel. Deduct the elevator charges and the freight, and the price goes well below today's market in most areas. Deduct from that figure the cost of processing, and it will be cheaper for a plant to close down than to continue operation. Some will probably do so. When they do, then prices of end products will rise. But when meal prices rise above certain levels, feeders object—and cut back the meal consumption.

CCC sales policies on 1961-crop soybeans have already been announced. We know the takeover of beans will not be sold for less than $2.46½ per bushel, national average. This will tend to be the selling price after June 1.

What does it all mean? To me there are several obvious things:

1—CCC stocks of soybeans will be by far the largest in history.

2—If you can get close to the support price on soybeans not yet harvested, you should either sell from the field or be prepared to hold until at least July.

3—Many farmers will overhold 1961-crop soybeans, actually take a loss when the shrinkage, interest and carrying charges and cost of handling are calculated. This is a natural followup of the conditions of 1960—when the crop was small and the demand large.

4—For the first time soybeans will actually be in surplus at the end of the 1961-crop year.

DON'T PUT SOYBEANS UNDER 480 Emanating from Washington are rumblings about placing soybeans on the list of commodities available for sale under P. L. 480. Soybean oil has been on that list for some time, but soybeans have never been there—and I hope they never get there!

The psychology of having soybeans on the surplus list would cost us a good part of the excellent dollar market we have built. Our commodity is a major source of dollar exchange. Why would anyone want to buy soybeans for dollars when he knew that by waiting he could buy for local currency under P. L. 480? Or knew his competition would buy for local currency, thus would be in position to underprice him?

P. L. 480 sales of soybeans should be only the very last resort! The current crop size and price are of governmental making, and it is the responsibility of government to offer solutions which will not lose us our dollar markets. It is to the longtime benefit of the nation to do so.

NEW DIRECTOR

Harris Barnes of Miss.

Harris Barnes, Jr.

HARRIS BARNES, JR., Clarksdale, Miss., was elected a director of the American Soybean Association to fill the unexpired term of the late Walter Scott, Jr., Tallulah, La., at the Indianapolis meeting.

Mr. Barnes, who is general farm manager of King & Anderson Plantation, is well known for his progressive farming practices. He has been in frequent demand as a speaker, and has made numerous talks on chemical weed control and skip-row cotton planting. Mr. Barnes appeared on the American Soybean Association convention program in 1960.

He is also somewhat noted as a photographer. His photos of farming operations have appeared in a number of publications including the cover of the Soybean Digest.

Mr. Barnes is a graduate of the Clarksdale public schools and of Mississippi State University from which he graduated with honors. He was with the U. S. Marine Corps during World War II and is still in the marine reserve as a lieutenant colonel. He is a member of Rotary, Planters Club, a deacon of the First Presbyterian Church, a member of the choir, active in Boy Scouts, and chairman of the camping committee, Delta Area Council.

Mr. Barnes is past president of the Mississippi State University Alumni Association. He is chairman of CROP for Coahoma County. The goal this year is to send one carload of soybeans overseas.

ONE OF Mr. Barnes' pictures. Nancy (left) and Martha Pilgreen, daughters of T. K. Pilgreen of King & Anderson Plantation, pose in some close row, cross planted soybeans.

1960 Soybean Maps

SOYBEAN PRODUCTION maps for 1960 have been issued for Illinois, Indiana and Ohio by Nickel Plate Road, Cleveland, Ohio. Acres and bushels harvested, also the locations of the soybean processing plants, are shown in each state.

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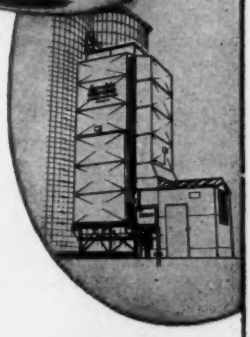

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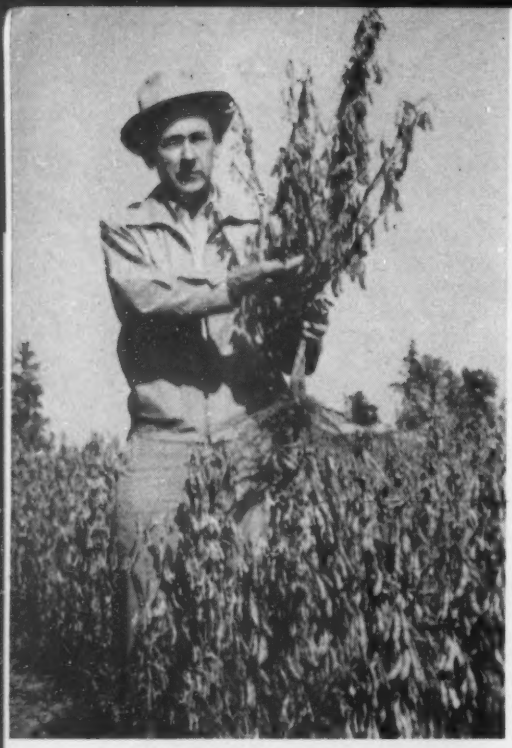


FOUNDATION seed increase of the Bienville at Red River Valley Experiment Station, Bossier City, La. J. Y. Oakes, superintendent.

POD PLACEMENT of the Bienville is well above the ground level.

The Bienville

A new full season, crushing type soybean for Louisiana

By JOHN GRAY
Louisiana Agricultural Experiment Station

SOYBEAN GROWERS in the deep south who have been somewhat disappointed in the yields, quality of seed and the shattering of the Jackson, and who have found that the earlier maturing varieties have not at times produced sufficient yield, height or forage canopy, should be interested in the Bienville variety. Excellent yields have been obtained from the Bienville soybean variety in Louisiana tests, where it compared favorably with the earlier varieties of Hill, Hood and Ogden, as well as with Lee, Jackson and Roanoke in seed yield, oil content, height and spread of plant, lodging and shattering resistance and in seed quality and viability. The Bienville averaged 44 bushels per acre in regional tests at Bossier City, St. Joseph and Baton Rouge during the 1957-1960 period.

Performs Well in All Sections

While the Bienville surpassed the commercial varieties at Baton Rouge, the yields of these varieties were not significantly greater than that of Bienville when grown at Bossier City and at St. Joseph for the past 4 years. The yields of Bienville were equal or greater at Bossier City and St. Joseph than at Baton Rouge, thus indicating **adaptation of Bienville to northern and eastern Louisiana** as well as to the southern half of the state.

Actually, the highest yields of Bienville have been reported from the Red River Valley Experiment Station at Bossier City, where much of the foundation seed of this variety is being grown. The Bienville produces highly satisfactory yields of grain over the entire state. The central and southern areas of Louisiana are more dependent on this full season variety than is the northern area where the Bienville yields are the highest but where earlier varieties may also be used.

The Bienville has performed equally as well or better than the Jackson variety in north Louisiana tests (table 1) and has yielded significantly more in the south central part of the state. Both mature in late October and have similar height, but the Bienville holds its seed better than does the Jackson.

Other Southern States

Highly satisfactory yields from the Bienville variety have also been reported from similar tests conducted in the southeastern states, where it has been equal or superior to Lee and Jackson in yield and seed quality. None of the named varieties in its maturity group has averaged significantly higher yields than the Bienville in tests in its area of adaptation over the South during the past 5 years.

Bienville yields of 40 bushels or more per acre have been reported from five of the southern states since 1956, when the Bienville tests were begun. These five states averaged 43

TABLE 1—PERFORMANCE OF COMMERCIAL SOYBEAN VARIETIES AS REPORTED IN LOUISIANA AND, UNOFFICIALLY, IN OTHER EXPERIMENT STATIONS

Seed, bushels per acre

	Louisiana			Avg. 12 tests per year		
1958-1960	Baton Rouge	Bossier City	St. Joseph	Avg.	South-east	Delta	Avg.
Bienville	40.8	48.3	43.9	44.3	34.4	42.4	38.4
Jackson	29.8	45.1	38.6	38.1	33.4	41.5	37.5
Lee	28.6	48.8	45.6	40.9	33.1	44.6	38.9
Hood	26.8	52.8	43.3	41.0	35.0	39.0	37.0
Hill	25.4*	38.6	48.4	38.4	31.7	35.7	33.7
Station avg.	30.3	46.7	44.0		33.5	40.6	
1960							
Bienville	41.2	47.7	43.7	44.2	34.8	40.7	37.8
Jackson	29.1	40.3	34.4	34.6	36.2	37.9	37.1
Lee	22.5	49.8	43.0	38.4	35.3	45.7	40.5
Hood	25.2	52.1	33.8	37.0	35.9	38.6	37.3
Hill	25.4	41.7	48.1	38.4	32.1	34.8	33.5
Station avg.	28.7	46.3	40.6		34.9	39.5	
L.S.D. 5%	4.5	6.8	8.6				

*1960

bushels per acre in 1960. A 5-year average yield of 45 bushels per acre has been reported from western Florida, which was comparable to 43 bushels per acre in Louisiana tests for the same period.

For Louisiana Growers

The Bienville soybean was developed by the agronomy department of the Louisiana Agricultural Experiment Station at Baton Rouge and was released to growers in 1958. It is of Pelican #2 x Ogden parentage and matures in late October. Bienville is characterized by dense spreading foliage, purple flowers, tawny pubescence, and golden brown pods at maturity. The yellow seeds are of medium size and have brown hila. The Bienville covers the field early with a forage canopy, averaging 38 inches in height, which reduces the growth of other vegetation in late summer. It produces seed well above the ground level and is resistant to lodging and shattering. The seed has a high oil content (approximately 22%). The Bienville is a dependable full season variety, well adapted to Louisiana conditions as well as to other areas in the Delta and Southeast.

JOHN GRAY, Louisiana State University agronomist, shows a Bienville soybean plant to some of the queen candidates at Louisiana's first statewide soybean festival above. Dr. Gray has taken active part in the event since it was started as a local festival at Jonesville. The program this year was dedicated to him.

BARBARA JEAN PRESTRIDGE, Louisiana's first state soybean queen, is a 19-year-old blue-eyed brunet. She is 5 feet, 6 inches tall and measures 36-23-37.

Takes lead in soy activities!

La. Soybean Festival

LOUISIANA, up to now not a top soybean state in total production, has been taking the lead in soybean activities in recent years.

The annual tri-state production and marketing forum held at Lake Providence, La., has been attracting a large attendance. The 5th annual forum was held last February.

And now a highly successful local soybean festival held annually at Jonesville, La., since 1956 has developed into a statewide event. The first annual 3-day Louisiana Soybean Festival was held at Jonesville Aug. 17-19. Plans for the statewide event were originally presented by the Jonesville Women's Club and the Jonesville Junior Guild, and they became a reality when agricultural and industrial interests were drawn in.

Featured events were the parade in which 20 queen contestants took part and the queen's ball, but there was also a car rodeo, teenage day and a swimming meet. And soybean products were given fitting publicity.

It was said that the parade, led by Jimmie Davis, governor of the Sovereign State of Louisiana, astride his horse Sunshine, was the largest ever seen in Jonesville.

Miss Barbara Jean Prestridge, 19-year-old daughter of Mr. and Mrs. Darrell Harrist, Vidalia, was crowned Louisiana's Miss Soybean of 1962. She was sponsored by the Vidalia Jaycees.

The first runnerup was Wanda Green, 19, West Monroe, sponsored by the Gross Development Corp. Second runnerup was Beverly Sunrall, Lake Providence.

This year's officers were Dee Brown, Sr., president; Geo. Griffing, vice president; Mrs. Raymond Mason, vice president; and Mrs. G. D. Babin, secretary-treasurer.

A. K. Smith of Peoria Lab on Trip to Asia

A. K. SMITH, head, meal products investigations, oilseed crops laboratory, Northern Regional Research Laboratory, Peoria, Ill., left Oct. 15 on a 2½-month trip planned for India, Japan, and Indonesia.

Dr. Smith will survey research laboratories in these countries to determine those that are qualified to do food research and development on soybeans, soybean products, and related agricultural products under the P. L. 480 program.

A. K. Smith

Dr. Smith will visit trade associations to encourage the use of U. S. soybeans in Japanese foods.

Surveys on the need for research will include these areas:

1—Supplementing bread and other cereal foods with soy flour and other soybean products to improve the protein value of the food.

2—Manufacture of soybean protein.

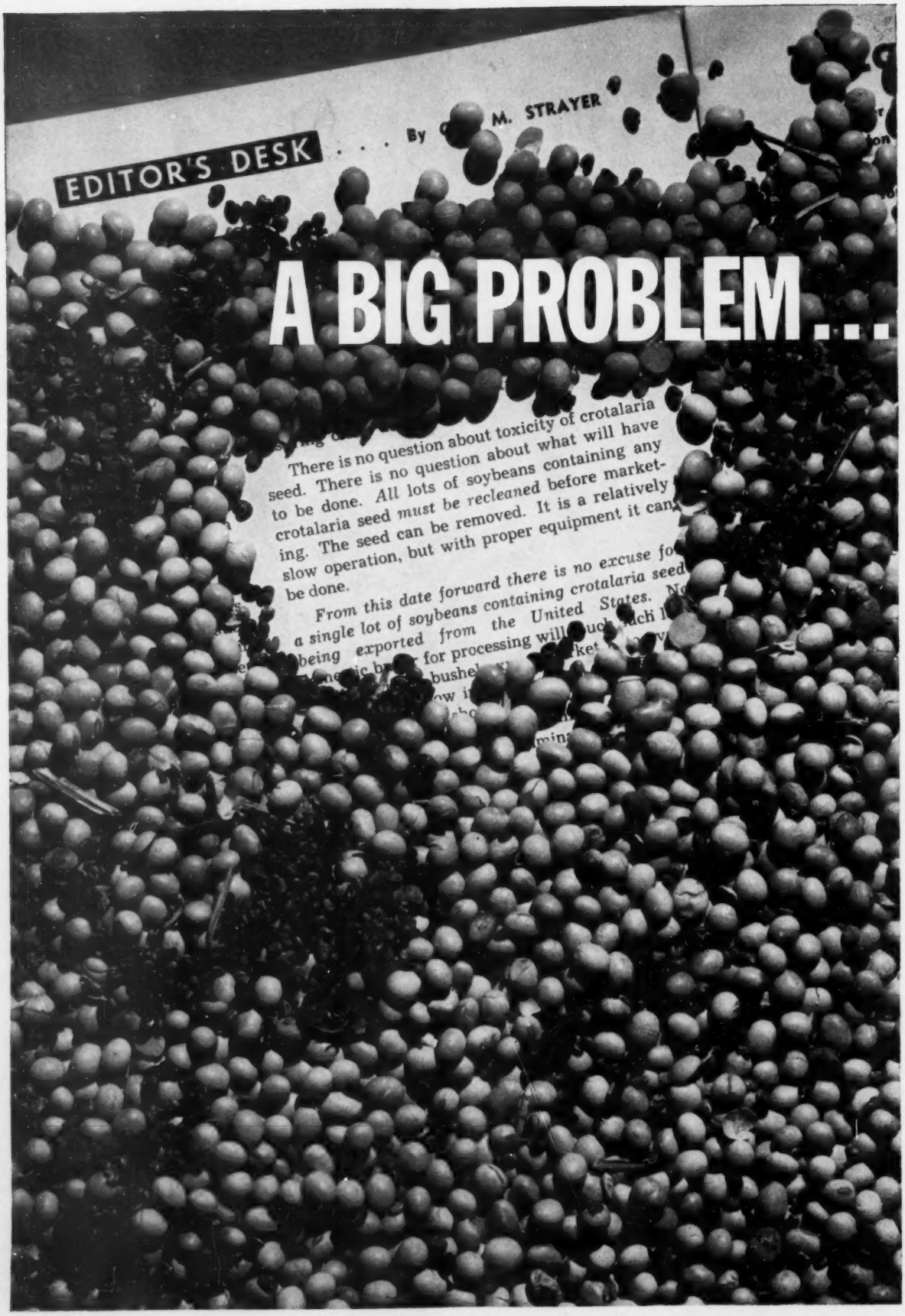
3—Use of tempeh, an Indonesian food made from soybeans, in Japan.

4—Production and nutritional value of soy milk.

5—Production of miso with low salt concentration for feeding babies. Miso is a traditional Japanese food made by the fermentation of soybeans.

6—Comparison of U. S. soybean varieties in commercial production of tofu, a cheese-like product, in Japan.

James P. Tappe has been named meal sales manager at Swift & Co.'s soybean mill at Des Moines, Iowa. He succeeds John Bramfield, Jr., who has been transferred to Chicago as assistant to Vice President C. T. Prindeville.


EDITOR'S DESK . . . By M. STRAYER
A BIG PROBLEM...
There is no question about toxicity of crotalaria seed. There is no question about what will have to be done. All lots of soybeans containing any crotalaria seed must be recleaned before marketing. The seed can be removed. It is a relatively slow operation, but with proper equipment it can be done.
From this date forward there is no excuse for a single lot of soybeans containing crotalaria seed being exported from the United States.

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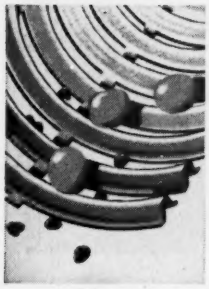
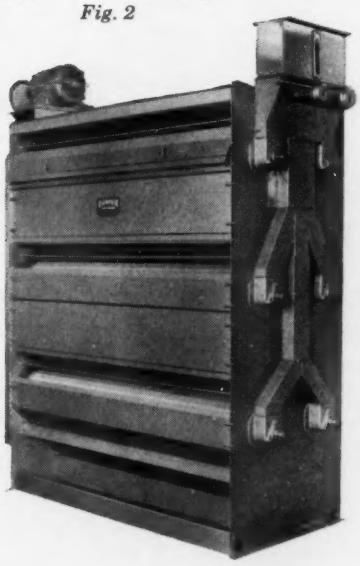


Fig. 1

Fig. 2



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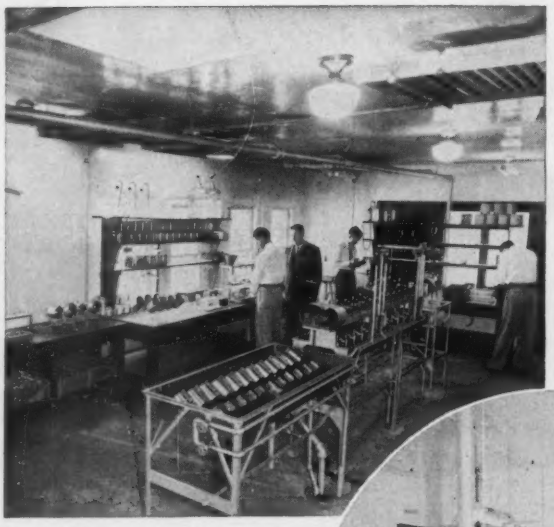
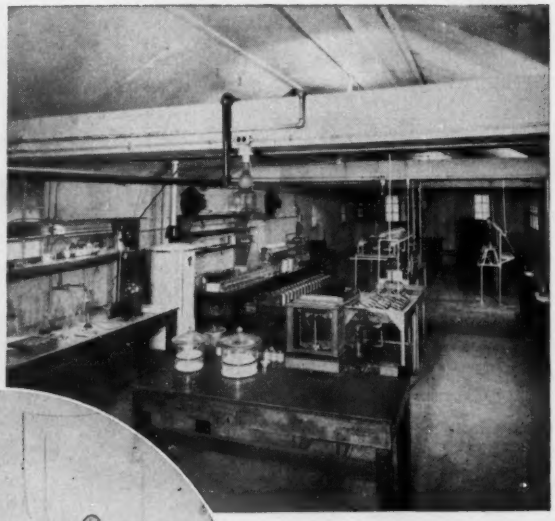


Our Chicago laboratory is equipped with the most modern equipment for refining soybean oils; soybean products and feeds.



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THE NEWS IN BRIEF

THE CROP, MARKETS AND OTHER ITEMS OF NOTE

Moisture Level Is Critical

The upper safety limit of the moisture content in stored soybeans is a very critical level, particularly in the South, warns R. C. Benz, agricultural engineer of the Arkansas Agricultural Experiment Station. He states that much of the annual 5% loss of soybeans during storage can be attributed to binning beans which have a moisture content no more than 1% above the safe moisture level.

Additional losses may be caused by moisture that collects during storage—particularly under southern conditions—even though the beans may have had a safe 12%-13% moisture content when harvested or after mechanical drying.

Such losses and moisture accumulations can be prevented by forcing a small amount of air through stored beans, says Dr. Benz. If soybeans are stored at a safe moisture level, only 0.2 to 0.3 cubic feet of air per minute per bushel needs to be pushed through the duct system to maintain satisfactory storage conditions in the southern states, according to Dr. Benz.

Acreage Controls Coming?

"We believe soybean acreage will continue to increase each year until the government puts acreage controls on it," Elbert D. Lott, president of the Mississippi Supply Co., Yazoo City, Miss., told the Midsouth Soybean and Grain Shippers Association meeting at Memphis.

"Our farmers think that this day is not far off as they are increasing acreage in order to get as high a base allotment as possible if beans go on acreage allotment. I hate to see this happen but **I believe it will be here within 3 years.**

"When I heard a speaker say at one of our meetings that one day American farmers will be producing 1 billion bushels of beans per year, I thought he was overly optimistic. Now I believe it is entirely possible. I just hope our increase comes in an orderly way so as not to depress our markets."

Certify Varieties for Export?

Establishment of a system under which the purity of a given variety of soybeans for export in commercial lots is certified was suggested by Geo. M. Strayer, executive vice president of the American Soybean Association, in a speech before the International Crop Improvement Association in Des Moines, Iowa, Oct. 25.

Mr. Strayer said such a program could be coordinated with federal grading standards to avoid unnecessary duplication and expense. "If such a program is offered," he said, "I feel sure that soybean buyers in other countries will welcome and use it."

He emphasized that there is a potential market for 100 million bushels of soybeans per year for food manufacturing abroad—an important enough market to merit the attention of both growers and certification agency officials.

Study of Unextracted Bean Meal

Soybean producers may soon have a chance to sell their beans locally to feed mills, according to findings reported by the U. S. Department of Agriculture. The beans would be cooked and used—unextracted—in mixed poultry feeds. Energy (calories) in feed can be supplied by the oil in the unextracted meal, instead of the feed-grade fat that is customarily used.

These conclusions by economists in USDA's Economic Research Service were obtained from analysis of published data, and from study of feed-making operations at five mills in the northwest Arkansas poultry area.

The relative cost for calories in the finished feed was the deciding factor in every feed-making operation studied. Study of these costs showed that feed mixers had potential processing-plus-profit margins for making

cooked unextracted meal from local soybeans that ranged from $2.76 to $13.62 per ton in the Arkansas area in the fall of 1960.

Market analysis also shows that even with a wide difference in market prices for feed-grade fat and soybean oil (4c or more per pound) some feed mixers may still be justified in using cooked soybean meal with the oil left in it.

Record World Crop

World production of soybeans in 1961 is estimated at 1.1 billion bushels, by far the largest crop ever produced, according to the U. S. Department of Agriculture. This is 17% larger than last year's crop, 12% above the 1958 record and 65% above the 1950-54 average.

The phenomenal expansion in this year's production is due chiefly to the record U. S. harvest. Record crops are also being produced in Brazil and Canada, and Mainland China's outturn may be slightly larger than the reduced crop of last year. Over two-thirds of the world production of soybeans this year is concentrated in the free areas of the world with the United States alone accounting for 63% of the estimated total.

Canada, on the basis of Sept. 15 conditions, will produce 7.4 million bushels, almost one-third larger than the reduced output of 1960. Brazil's soybean production, which has trended upward since 1956, reached a record high of 9.5 million bushels in 1961, an increase of almost one-fourth from last year's crop. Farmers in Brazil are expected to increase the area sown to soybeans this season by another 20% to 30%.

Natural calamities reportedly plagued Mainland China again this year, but total production is estimated unofficially at 340 million bushels, slightly larger than the reduced outturn last year. Soybean production may have increased slightly in the Soviet Union this year, and larger crops are also reported in Thailand, Indonesia, and Colombia.

Iowa Has Storage Boom

The Des Moines (Iowa) Register has stated Iowa is experiencing its greatest grain storage boom in history, which is taking place in almost every area of the state. The Register quoted Eugene Johnson of the Iowa ASC office: "We thought Iowans might build or purchase about 20 million bushels of new on-the-farm storage under the special programs this year, but it looks now like the total will exceed 25 million."

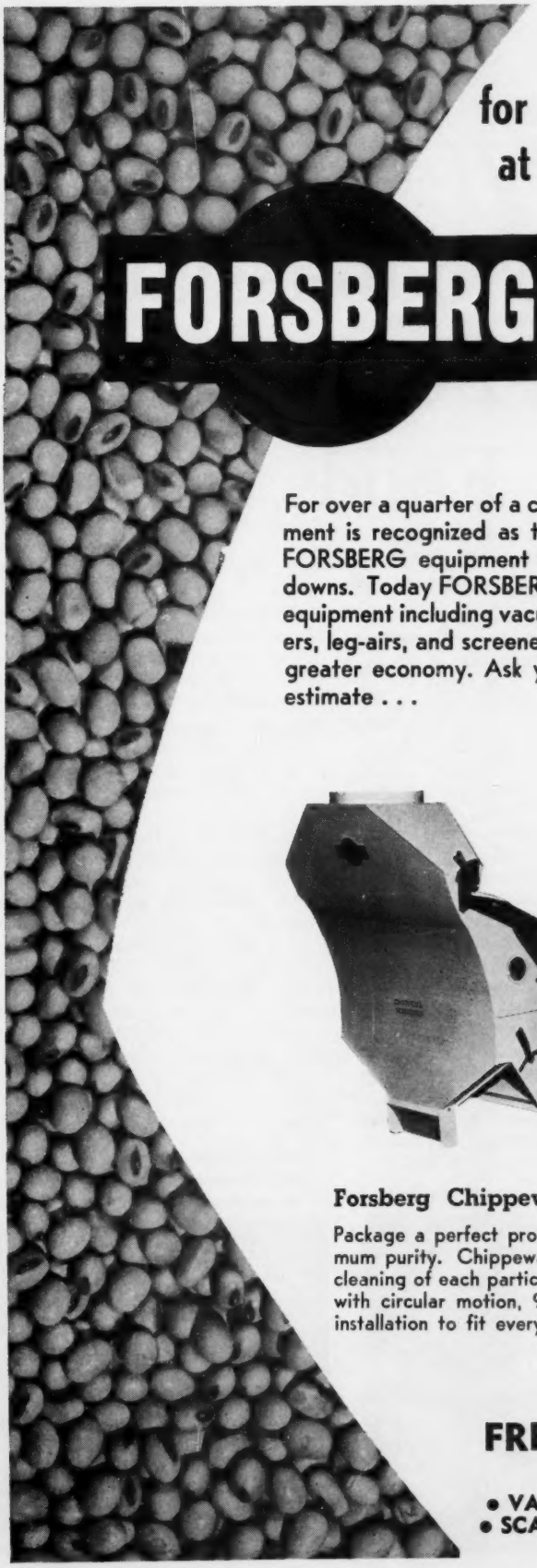
Arthur E. Frank, Dannen Mills, St. Joseph, Mo., wrote: "We have reports in many areas of very good sales of metal and wood bins."

Quoting L. H. Simerl, department of agricultural economics, University of Illinois: "Farmers appear to have stored more beans on farms this fall than ever before. This puts them in a good position to bargain with buyers. If farmers put, say, 20% or more of their beans under price support, the market price would likely rise to several cents over the support level."

Big South Carolina Crop

"South Carolina has the largest and perhaps the best soybean crop in its history," says J. T. McAlister, conservation equipment engineer, USDA Soil Conservation Service, Orangeburg, S. C. "The crop reporting service estimates the acreage at 559,000 and yield per acre at 21 bushels. This acreage isn't far behind North Carolina and the estimated yield is almost 5 bushels per acre more than in 1960. Excessive rains have caused heavy growth of weeds and grass. There is some insect damage, but it is being controlled to a large extent with chemicals."

USDA reports Spain recently purchased from Brazil 30,000 metric tons of peanut meal, 55% protein, at $70 per ton fob Brazilian ports, and 9,000 tons of soybean meal, 44% protein at $75 fob Brazilian ports. One of the biggest users of meals in the manufacture of feeds in Spain has estimated his company's needs for calendar 1962 at 150,000 to 175,000 tons of oilseed meals. He also estimated the industry will produce 1 million tons of mixed feeds in 1962.



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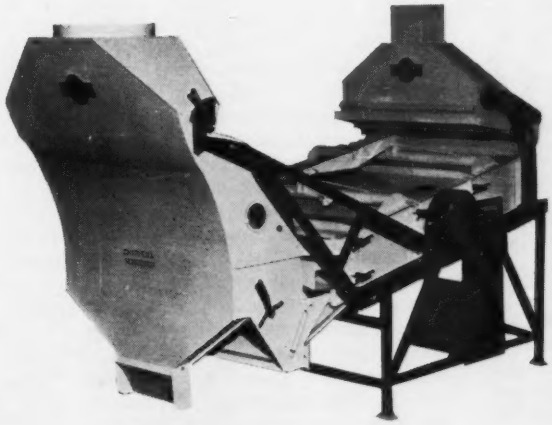

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MATURE TEMPE prepared with Rhizopus sp. NRRL removed from dish. Note growth of mycelium throughout the culture.

Made from Soybeans

Indonesian Fermented Foods

By KO SWAN DJIEN[1] and C. W. HESSELTINE[2]

Northern Regional Research Laboratory[3], Peoria, Ill.

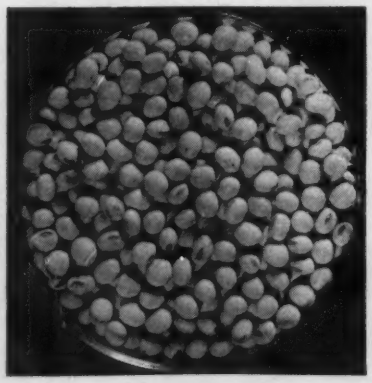
THE MANUFACTURE of various popular Indonesian fermented foods is a part of applied microbiology to which modern science has not yet had the time to pay much attention. Indonesian people still produce these food products at home in this ancient way, little disturbed by the automation of modern techniques. Totally, these food products are produced in large quantities. Many thousands of people, perhaps hundreds of thousands, make their living in this domestic home industry.

The more than 3,000 islands of Indonesia, with a total land area of 735,000 square miles and a population of 85 million people, are scattered along the equator. Because of Indonesia's location near the equator, its mean temperature at sea level is about 26° C. (= 79° F.); every 300 feet of elevation reduces the temperature by 1° F. For example, Bandung, a city which is about 2,200 feet above sea level has an average temperature of 22° C. (= 72° F.). The temperature variation at any given place is usually not more than 5° C. or about 10° F. Greater variations than these limits are exceptional and do not occur often. People can almost predict the weather themselves, therefore there is no need for hourly announcements about the weather as in the United States.

The temperature range in Indonesia, roughly between 20° and 30° C., is the optimum for most microbes. Therefore, it is not so surprising that for centuries the people in Indonesia have prepared several kinds of food using the activities of microorganisms without realizing that they were making use of microbes. This kind of situation is similar to that which existed in Europe with alcohol and wine making before Pasteur discovered yeast. In no case are controlled temperatures used, such as are encountered in incubators.

Some of the information reported on fermented foods popular with Indonesians was obtained from the rather sparse literature on the subject (1,3,4, 5); most of it comes from personal observations by Mr. Ko.

DRY SOYBEANS.



SOYBEANS after soaking, dehulling, cooking and inoculating, ready to be placed in incubator.

Tempe (Tempeh)

One of the most popular fermented foods in Indonesia is témpé kedelé, or simply called témpé, which is made from yellow soybeans fermented with several species of **Rhizopus.** Work at the Northern Laboratory has shown that at least four species (**R. stolonifer, R. oligosporus, R. oryzae,** and **R. arrhizus**) can be used to make témpé.

There are several variations in the domestic procedure of manufacturing témpé, but the main points in the procedure are as follows: Soybeans are soaked overnight so that the seedcoats can be easily removed. Seedcoats can be removed by hand, but people also do it by placing the soaked soybeans in a bamboo basket and then

[1]Acknowledgment is made of the sponsorship of the International Cooperation Administration via the Kentucky Research Foundation, who made it possible for Mr. Ko to take part in this study at the Northern Regional Research Laboratory. Present address: Laboratorium Mikrobiologi, Departemen Kimia dan Biologi, Institut Teknologi Bandung, Bandung, Indonesia. [2]In charge of ARS culture collection at Northern Regional Research Laboratory. [3]This is a laboratory of the Northern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture.

trodding in it by foot at the edge of a river, so that the seedcoats, which are easily freed from the beans, float away with the streaming water. The combination of food and feet from the viewpoint of ethics is somewhat confusing. But, microbiologically, one need not be troubled because after the seedcoats are removed, the beans are cooked.

After being cooked in boiling water without any pressure for about one-half hour, the beans are spread as a thin layer on a flat bamboo tray (tampah) or bamboo mat to cool and to dry. Now a well-made témpé of a previous batch (dried or fresh) is broken into small pieces and mixed with the heap of cooked soybeans. The inoculated soybeans are ready to be packaged.

The most usual method of packaging is to wrap a handful of beans with banana leaves into packages of about 1 x 5 x 10 cm. (0.5 x 2 x 4 inches). These packages are kept at room temperature for 1 or 2 days; during that time the mold forms a mycelial mass which ties the beans together so that a white compact cake is formed. This cake is called témpé. It has a white color and a very attractive fresh odor.

In Indonesia the témpé, wrapped in banana leaves, is sold at the market by the people who manufacture it at home. They make about 100 pieces of témpé every day. For a batch this size about 5 kilograms of soybeans are needed.

To make a big cake of témpé, the bottom of a flat bamboo tray (tampah, diameter of about 20 inches) is covered with several layers of banana leaves (monocotyledonous), on which the inoculated beans are spread in a layer about 2.5 cm. thick (about 1 inch).

The beans are covered again with several layers of banana leaves and now something heavy is placed on the leaves to press them down and to prevent too much aeration, because excess aeration will cause the development of too many black sporangia. Although these black sporangia do not affect the quality of the témpé, the black color may be unattractive to some people.

Another method is to keep the inoculated beans in the hollow space of a bamboo stem which is cut lengthwise in two halves. After it is filled with the inoculated beans, the halves are put together again by binding them with a string. In this case, one gets a cylindrically formed témpé.

The témpé, which is sold at the market in one of the three mentioned forms, is ready to be prepared by the housewife in several ways. The témpé can be cut into thin strips, dipped into a salt solution and deep-fried in coconut oil.

At the Northern Laboratory we have found that various vegetable oils can be used in place of coconut oil. In no case is there a moldy taste or odor and the fried material takes on a delightful flavor and a light brown color. This is the simplest method, which we have used in the laboratory and which has attracted so many to the place where we work. Apparently our fellow associates have good taste!

Another method is to coat thin slices of témpé with flour and fry it in coconut oil. Témpé is also used in a special soup of coconut milk which contains red peppers, corn, beans and some other ingredients. There are still other methods of preparing témpé which would take too long to describe here.

The latest news which we have recently from Indonesia is that fried témpé is now sold in a dry form in tin containers. This indicates that efforts are already being made to make témpé on a larger scale. But even in the old traditional way, if you think of cities like Djakarta with a population of 3 million or Bandung with a population of 1 million, there are maybe thousands of people who make their living in témpé making. Half or more of Indonesia's soybean production, 17 million bushels in 1959, is possibly used for making témpé (2). Recently an abstract by Wagenknecht et al. (6) has been published on témpé.

Ketjap

Ketjap is soy sauce made from black soybeans. Black soybeans are boiled and fermented with **Aspergillus oryzae** for 2 or 3 days. The fermented soybeans are then put into salt brine and kept for about 8 days. Then they are filtered and the residue is cooked several times with fresh water to extract all the soluble parts. To the collected liquid, aren sugar and other flavorings are added according to the specialty of the manufacturer. The fluid is then concentrated by slow boiling and the thick solution is ketjap, ready for use. Variations in procedure are possible. In Indonesia ketjap is sold in bottles of about ½ liter.

Studies at the Northern Laboratory

Investigations are being carried out at the Northern Laboratory on the species and strains of **Rhizopus** which have proved to make good témpé. These investigations include study of the carbon and nitrogen sources, especially various forms and fractions of soybeans, which the témpé molds can use or convert.

Also being investigated are the types of enzymes, especially proteases, lipases and amylases, as well as organic acids and other products present in the **Rhizopus** cultures. Since the optimum temperature for the témpé fermentation of soybeans is important, temperature ranges for growth and fermentation have been established. Temperatures from 25° to 40° C. may be used for making témpé. At 32° C. témpé may be made in a period of 20 hours with certain cultures.

At the Northern Laboratory we have used Petri dishes to prepare batches of témpé from U. S. soybeans, especially the variety Hawkeye, not only from the whole soybeans but also from beans which have had their seedcoats removed and the cotyledons cracked into several pieces.

Although Indonesia grows all the soybeans consumed there at this time, it is hoped that sufficient basic information can be established in order to make it possible to prepare this nutritious and delicious food in other parts of the world. Such a food might be introduced into countries where good protein foods are desperately needed and, in turn, the development might promote the export of U. S. soybeans.

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Physiological Comparisons of Soybeans and Corn

By ROBERT W. HOWELL

Plant Physiologist, U. S. Regional Soybean Laboratory. From his speech before the American Soybean Association convention.

WHY DON'T soybeans yield as much as corn or cotton? This question has probably occurred to every farmer who has grown soybeans after experience with other crops, and it has probably been asked of every agronomist working with soybeans.

There are some basic biological facts which are pertinent to such a question. In this paper some of these facts as they relate to soybeans and corn will be considered. Similar comparisons of soybeans with other crops would be possible.

Basic to any inter-crop comparison is a consideration of the chemical composition of the product. Soybeans are relatively high in oil and protein and relatively low in carbohydrates. Corn, on the other hand, is high in carbohydrates and low in oil and protein. The average energy contents or caloric values of these three classes of food materials are as follows: carbohydrates, 1,860 Kcals/lb.; fats and oils, 4,300; proteins, 2,560. Fats and oils contain two and one-third times as much energy per pound as do carbohydrates. Proteins contain one and a third times as much. It is therefore apparent that a bushel of soybeans will contain substantially more energy than a bushel of corn.

Both corn and soybeans (as well as any other crop) depend on sunlight for the energy which is ultimately stored in the seeds. During the season a field of corn and a field of soybeans will absorb about the same total amount of light. Therefore they have available about the same amount of energy. If one crop concentrates this fixed amount of energy into units which contain more energy per pound it will obviously be able to make fewer pounds. This is exactly the situation in the case of soybeans as compared with corn. Soybeans concentrate more of the total available energy in oil and protein than does corn and therefore can make fewer total pounds of material from the given amount of light energy which is absorbed.

In addition to the storage of some of the energy in the seed another important concept to recognize concerns the "work" which the plant must do to make high-energy materials such as oil and protein. The first major product of photosynthesis is carbohydrate which the leaves of most plants store in the form of starch. This carbohydrate can be considered a raw material or starting material for the synthesis or formation of other materials. To make products such as oil and protein the plant must not only concentrate the energy into tighter units but also must consume a certain amount of energy to do the work of synthesis.

To illustrate, in making 1 pound of oil a plant uses up nearly 5 pounds of carbohydrates. About 55% of the energy in 5 pounds of carbohydrates is represented by the energy in 1 pound of oil. The remaining 45% is used up or "burned" in the process of building the higher energy oil molecules and is thus lost from the plant.

TABLE 1. "WORK" IN SOYBEAN AND CORN PRODUCTION

Energy source	Composition % of Dry wt.	lb./bu.	Stored Kcal/bu.	"Work" Kcal/bu.	Total	Equiv. yield (bu.)
			Soybeans			
Carbohydrates	33	17.4	32,000	0		
Oil	22	11.6	50,000	40,000		
Protein	40	21.1	54,000	29,000		
Ash	5	2.6	0	0		
Nitrogen fixation	---	---	0	33,000		
Total	100	52.7	136,000	102,000	238,000	45
			Corn			
Carbohydrates	84	40.5	75,000	0		
Oil	4	1.9	8,000	6,200		
Protein	10	4.8	12,000	6,400		
Ash	2	1.0	0	0		
Total	100	48.2	95,000	12,600	107,600	100

Summary

	Total Kcal/bu.	Equiv. yield
Corn	107,600	100
Soybeans	238,000	45

Cost of Protein

There is a similar cost in the synthesis of protein but it is somewhat smaller than that required for synthesis of oil.

The magnitude and importance of the chemical composition and the work factor are illustrated in table 1. When

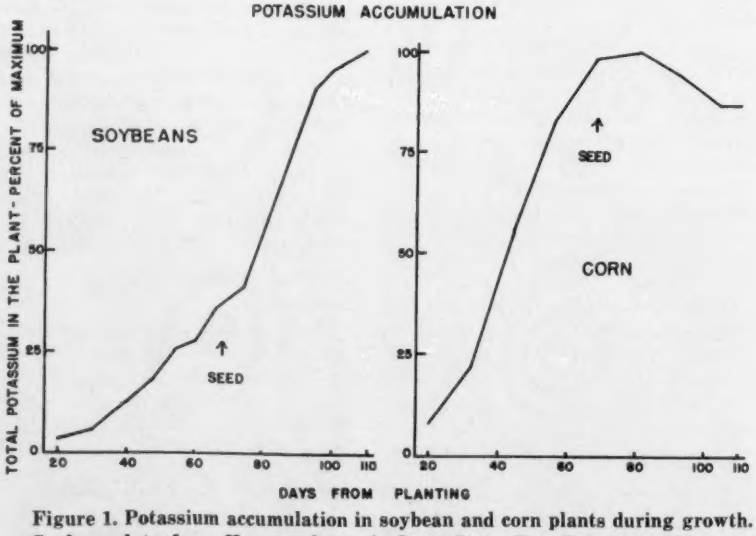

Figure 1. Potassium accumulation in soybean and corn plants during growth. Soybean data from Hammond, et al., Iowa State Res. Bul. 384. 1951; corn data from Sayre, Plant Physiology 23:267. 1948.

the caloric values of the stored materials and the work factors are considered, a bushel of soybeans represents more than twice the caloric value of a bushel of corn.

The item in table 1 for work energy in nitrogen fixation should be noted. There is considerable uncertainty about the precision of the estimate of this item. There is also uncertainty about the amount of energy required by any plant to absorb nutrient elements from the soil. It is the general opinion, however, that energy requirements for absorption of nutrients is quite low. The information available on the metabolism of the nodule systems in which nitrogen is fixed suggests that for a crop of about 40 bushels of soybeans the work factor estimated in table 1 is probably reasonable. Corn and other non-legumes have no such energy requirement. At the bottom of table 1 is a summary indicating that a yield of about 45 bushels of soybeans is equivalent to 100 bushels of corn. It is interesting that the Illinois average yields for the 10-year period 1948-57 and for the years 1958 and 1959 show a ratio of soybean to corn yields of .40 to .45 in each case.

Response Surprising

The information and concepts concerning energy are important in placing inter-crop comparisons in proper perspective. The often alleged poor response of soybeans is in fact not real. On a pound or bushel basis soybeans are simply more valuable than corn, not only in the market place and in animal feeding value but in terms of energy content or work the plant has to do. A field of soybeans which is producing in the 45-bushel range is doing the same job as a field of corn producing in the 100-bushel range.

These considerations in no way detract from the desire to improve soybean crop performance. In a way it is surprising that soybeans have done so well with techniques designed for other crops. This pertains not only to machinery but to fertilizer and cultural practices.

It is quite possible that soybeans have nutrient requirements at different stages of growth which are unlike those of other crops. This is illustrated for potassium in figure 1. Whereas corn contains its maximum amount of potassium when seed development begins and actually appears to lose about 10% during the latter part of the growth cycle, soybeans have a high requirement for potassium during the period of seed development. Yet there is reason for serious doubt as to whether a good soybean crop can get all the potassium it needs during this late period. Acquisition of potassium is probably limited both by the immobility of the element in the soil and by the reduction or cessation of root growth during this late period. This fertility-plant relationship seems to be quite different in corn and soybeans and illustrates the fact that practices appropriate for one crop are not necessarily best for another crop.

There is need for a new approach in the study of fertility problems as related to soybeans which takes into account special requirements during the latter part of the growth cycle.

The soybean has similar high requirements for other elements, particularly phosphorus and nitrogen, during the period of seed development. The problems for phosphorus are very similar to those for potassium. Since phosphorus is relatively immobile in the soil the possibility exists that deficiencies of this element and of potassium may exist in the immediate zone of the root even though a soil test might indicate adequate supplies of

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EXPORTS—Exports of whole soybeans grew from nothing 12 years ago to 142 million bushels from the 1959 crop—and every bushel was exported for dollars. Exports of oil from the 1959 crop amounted to almost 100 million bushels (two-thirds of it for dollars), and meal from 28 million bushels, all for dollars. The total exports amounted to more than $400 million.

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the element. For nitrogen the problems are somewhat different because the element is mobile and the operation of the nitrogen fixing system is intimately involved in the general nitrogen picture.

In summary it can be stated that any comparison of two crops such as soybeans and corn should take into account their chemical compositions and the energy factors involved, not only in the stored materials such as carbohydrates, fats and proteins, but also the energy requirements for the formation of high-energy materials. There is evidence that soybeans have somewhat different requirements for nutrients as related to stage of growth and these differences should also be considered in inter-crop comparisons.

Disease in Iowa May Cause Low Germination

SOYBEANS BEING harvested now for seed in many parts of Iowa are heavily infected with disease and may produce poor stands in 1962.

Gayle Worf, plant pathologist at Iowa State University, reported that a Sept. 14 and 15 survey of 63 soybean fields in 29 Iowa counties showed "much higher" incidence of disease than in normal years. The survey covered 770 miles and was conducted by Iowa State Agronomist C. R. Weber and Plant Pathologist J. M. Dunleavy.

Bacterial blight was by far the most prevalent disease, infecting 87% of the fields checked—compared with 18% infection in 1960. Bud blight also broke previous records for prevalence, showing up in over half of the fields observed.

These and other bacterial diseases got their start when soybeans lay idle last spring in cool, moist soil. When soil temperatures warmed up and the beans germinated the already-present disease organisms moved up developing plants, where they invaded new pods and seeds.

Farmers who intend to plant their own seed next spring had better make sure they have a germination test run before planting time—or risk stand failure. Farmers who buy their seed should pay close attention to the germination percentage indicated on each bag.

It's also advisable not to rush planting dates next spring, Dr. Worf said. Soybeans infected with disease organisms can often produce a crop if planted in a warm soil that encourages rapid germination and growth.

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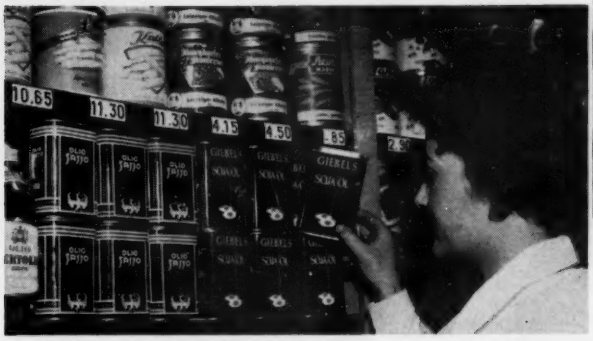
4-H Club Girl Wins With Japanese Meal

JOAN RUTHS, 17-year-old Waterville, Minn., 4-H club girl, won a blue ribbon at the Minnesota State Fair for her demonstration in which she prepared and served a complete Japanese meal. The title of her demonstration was "Entree Tofu Steak."

Tofu, miso soup, amburaage, and soy milk were among the many dishes made from soybeans that were on her menu.

Joan closed her demonstration by wearing a coolie hat, placing a Japanese lantern on the table for a centerpiece and saying, "Soybeans for our nation's economy, food for millions, and peace for the world."

JOAN RUTHS and her demonstration of Japanese foods.



VEGETABLE oil products on grocery shelf in Western Germany. Annual per capita consumption of all fats and oils in Western Germany in 1961 is about 10 pounds higher than prewar, says K. W. Fangauf, the Council's director for Germany. Per capita consumption of table oil has increased from 5.3 pounds to 6.4 pounds in the past 5 years.

U. S. CONGRESSMEN, members of the Presidential committee to Italy for celebration of the centennial of Italian unification, visited the Soybean Council offices during their stay in Rome, and discussed the SBC market development program with Dominic J. Marcello, SBC director for Italy. From left, Marcello, Rep. Alfred E. Santangelo, member of the subcommittee for agriculture of the House appropriations committee; Thomas Jorio, assistant sergeant at arms of the House; Rep. Roland V. Libonati of the house judiciary committee; Rep. Dominick V. Daniels and John H. Dent, both of the House education and labor committee.

To Exhibit at Hamburg

THE SOYBEAN COUNCIL and other commodity organizations will exhibit at the U. S. Food Fair 1961, the largest and most complete exhibit of American food and agricultural products ever sponsored anywhere in the world, to be held in Hamburg, Germany, Nov. 10-19.

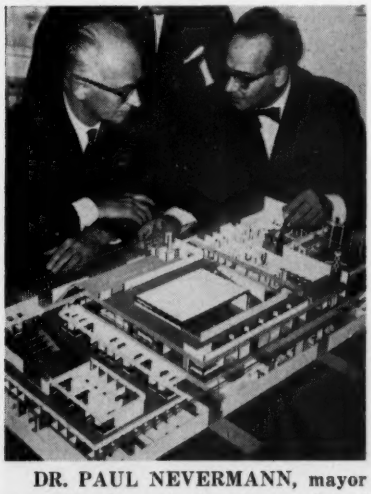
The SBC exhibit will feature soybean meal in livestock feeding. The Council is also holding a 2-day meeting in connection with the fair.

The exhibit is being organized by the U. S. Department of Agriculture and the U. S. food and agricultural industries. No other countries are participating. The all-U. S. exhibit will cover about 70,000 square feet of floor space.

For the first time on a large scale, prominent food companies from the United States (including some soybean processors), Germany and other European countries will participate commercially in the fair. These companies will sample, sell, demonstrate, and give away food items and products to exhibit visitors.

Wilfrid B. Cox, vice president of Honeymead Products Co., Mankato, Minn., will be in charge of the Soybean Council exhibit at the Hamburg fair for the duration of the fair.

The exhibit will feature soy products including soybean meal, soybean oil and soy flour. It is being put on with the cooperation of the German oil millers.



DR. PAUL NEVERMANN, mayor of Hamburg, looks at a model of the U. S. Food Fair 1961 while Wilbert Schaal, fair director (right), discusses the plans for the big show to be held in Hamburg.

Coune of Nutrena Mills In Overseas Seminars

FRANCIS L. COUNE, director of research and nutrition for Nutrena Mills, Tampa, Fla., leaves the United States about Nov. 10 to participate in three overseas seminars.

Francis L. Coune

Dr. Coune will take part in the Livestock Nutrition Seminar in connection with the U. S. Food Fair at Hamburg, Germany, Nov. 13-14; in the Poultry Nutrition Seminar in Israel Nov. 20-23; and the Poultry Seminar in Paris Nov. 30-Dec. 2.

Dr. Coune will speak on the application of advanced research to poultry feeding operations, and also on the economic problems of the poultry feeder at the Israel seminar.

Dr. Coune is a past member of the executive committee of the American Feed Manufacturers Association nutrition council.

Swine Work in Europe By Teague of Ohio U.

HOWARD S. TEAGUE, professor in the department of animal science, Ohio State University, Wooster, Ohio, left the United States Oct. 30 to work with Soybean Council country directors in France, Belgium, Denmark, Sweden, Germany and the United Kingdom on improving swine production through the use of soy protein.

Howard S. Teague

Dr. Teague will deliver an address on recent developments in swine nutrition at the Livestock Nutrition Seminar in Hamburg Nov. 13 and 14 in connection with the U. S. Food Fair there.

Dr. Teague has carried on extensive research into swine feeding including a comparison of all-plant and plant and animal protein rations for the drylot feeding of swine, and also the vitamin requirements of pigs. He will be in Europe about 3 weeks.

Hold Nutrition Week For Fighting Bull

THE FIRST international week on nutrition of the fighting bull, held at Salamanca, Spain, Sept. 17-21, was a tremendous success, according to Javier de Salas, the Soybean Council's Spanish director. Gonzalo Rivera, the Council's deputy director for Spain, was in charge of the meetings.

Salamanca is in the center of the bull fighting area of northern Spain where the best fighting bulls are bred. There is great interest in anything connected with the fighting bull in Spain, as well as in Portugal and the South American countries.

The event was co-sponsored by the Fighting Bull Breeders Association and the Veterinarians Association of Spain. Veterinarians and bull breeders from all over Spain attended the meetings. There are about 1,000 breeders of fighting bulls in Spain and most of them raise other animals as well. Representatives of the livestock division of the Ministry of Agriculture attended in force.

Posters advertising the event were widely distributed, and stories covering the meeting were carried in the newspapers and trade press.

In addition to the technical papers presented by nutrition specialists and breeders, bullfighters talked on problems concerning the fighting bull. Bull breeders, who had looked on the meeting as a "Madison Ave. stunt" to increase the sale of soybean products, changed their minds and were asking for copies of the proceedings before the mectings were over.

The Soybean Council was officially requested to organize a meeting of this type every year.

IN ANTICIPATION of the first International Week of Nutrition of the Fighting Bull, Gonzalo Rivera (left), SBC deputy director for Spain, was interviewed in a half hour radio program by Jose Luis Trigo, lawyer and bullfighter critic of Radio Madrid.

The Cover Picture

On the front cover is the illustration carried by the posters that advertised the first international week on nutrition of the fighting bull. The posters were distributed in all parts of Spain.

T. M. Gilkison

Gilkison Named SBC Technical Consultant

APPOINTMENT OF T. M. Gilkison of Houston, Tex., as a technical consultant in vegetable oils for the Soybean Council has been announced.

He left Oct. 29 on his first assignment in Pakistan and Iran.

A graduate in chemical engineering at the Illinois Institute of Technology where he obtained his B. S. and M. S. degrees, Mr. Gilkison was with Anderson, Clayton & Co. from 1938 to 1961, in various cities in Texas, in Monterey, Mexico, and in Sao Paulo, Brazil.

His experience includes research on the refining of vegetable oils, installation and operation of continuous vegetable oil refineries, superintendent of a finished products plant including shortening, salad oils and margarine.

HORACE D. GODFREY of U. S. Department of Agriculture opened U. S. mobile exhibit at Swiss fair. His interpreter was Gisela Aeschlimann.

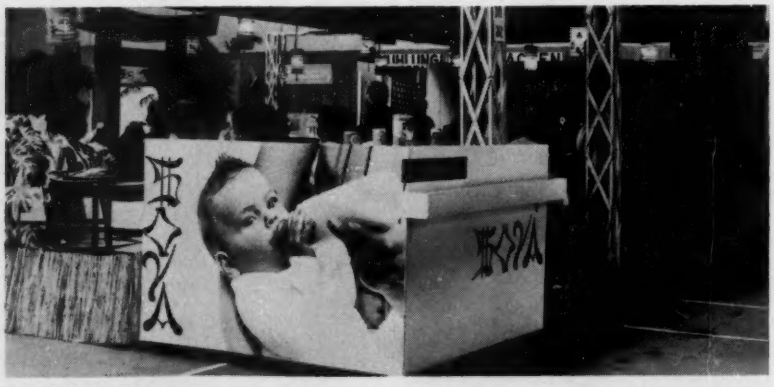
U. S. Mobile Exhibit First at Swiss Show

THE U. S. MOBILE exhibit of soybeans and feed grains represented U. S. agriculture at the Swiss National Livestock Fair at St. Gallen Oct. 12-22 —the first foreign government exhibit ever to be accepted by this major show. The exhibit is sponsored by the Soybean Council and the U. S. Feed Grains Council.

Because it was a "first" for the St. Gallen fair, the U. S. entry received unusual attention from U. S. and Swiss officials alike.

The exhibit stressed the important role that feed grains and soybean meal play in low-cost production of meat, milk and eggs in the United States. It emphasized the importance of balanced feeding and pointed up the availability of high quality feed grains and protein feeds from the United States.

The mobile exhibit has been shown in four other European countries in recent months.



DISPLAY of soybeans and soybean products sponsored by the Soybean Council at the Food and Drink Fair, the Hague, Netherlands. Caption on the baby picture is, "Soy milk is a complete food."

WOMEN'S NUTRITION team with the Strayers at the Hudson office of the American Soybean Association (left picture). Left to right, Executive Vice President Geo. M. Strayer, Mrs. Toshiko Kondo, Mrs. Strayer, Miss Yoshiko Kojima, and Miss Mitsuko Matsutani. (Right picture) Miss Kojima at left, passes samples of sukiyaki at the Hudson Community School, where the three women demonstrated its preparation.

JAPANESE AMERICAN SOYBEAN INSTITUTE

Two Japan Teams Tour U.S.

THIRTEEN representatives of the Japanese grain exchanges where futures trading in soybeans and soybean products is being transacted visited the United States to study the operations of the grain exchanges and futures trading in this country in late October and early November.

They visited the exchanges and brokerage and commission houses in Minneapolis, Chicago, and Memphis to see how the records are kept and the transactions carried on.

They visited the export facilities in New Orleans, and spent 3 days in Washington, D. C., with USDA officials in Commodity Exchange Authority and Foreign Agricultural Service.

The trip was made in cooperation with the Japanese American Soybean Institute and the American Soybean Association.

The grain exchanges represented were the Tokyo Grain Exchange, the Osaka Grain Exchange, the Nagoya Grain Exchange, and the Kanmon Grain Exchange.

The members of the team included: Shiro Suzuki, president, Tokyo Grain Exchange; Satoshi Yamaguchi, director, Tokyo Grain Exchange; Takatoshi Yoshitsugu, director, Osaka Grain Exchange; Hiroshi Iwasa, director, Soybean Oils & Fats, Ltd.; Yoshiaki Saeki, president Yamasa Shoji & Co., Ltd.; Yoshiharu Tsutsumi, president, Kanetsu Shoji & Co., Ltd.; Yonetaro Mizuno, president, Marushizu Shoji & Co., Ltd.; Kunio Yamanaka, president, Kowa Shoji & Co., Ltd.; Hideo Kinoto, president, Maruichi & Co., Ltd.; Tadao Inoue, president, Kyoei Bussan Kaisha, Ltd.; Seiki Shimizu, managing director, Kanetsu Shoji & Co., Ltd.; and Teruji Kaibara, president, Shinei Shoji & Co., Ltd.

Sadatoshi Maeda, Mitsuiline Air Service, acted as interpreter for the team.

Women's Nutrition Team on U. S. Tour

A JAPANESE WOMEN'S nutrition team toured the United States in October under the sponsorship of the Japanese American Soybean Institute and the American Soybean Association hoping to learn as much as possible of American food habits and methods of food preparation.

They visited school lunch systems at both primary and university levels, observed the feeding programs in various public institutions including hospitals and county homes, toured U. S. food manufacturing plants, and were guests in American homes.

The members of the team were:

Mrs. Toshito Kondo, executive director of the Nutrition Popularization Institute, who lectures in a number of Japanese schools and universities under the auspices of the Welfare Ministry.

Miss Mitsuko Matsutani is also one of the key people in the nutrition program of Japan, under the Ministry of Welfare. Miss Matsutani has been in direct charge of the scheduling and operation of the large number of kitchen buses that have been touring Japan in recent years, taking information about better nutrition direct to the housewives. She has prepared the recipes for the cooking demonstrations on these buses.

Miss Yoshiko Kojima, who has been with the Japanese American Institute since its establishment, is assistant to Managing Director Shizuka Hayashi. She supervises both the office and also many outside activities of the Institute.

REPRESENTATIVES of the Japanese grain exchanges at Hudson, Iowa, with Geo. M. Strayer, American Soybean Association executive vice president (fifth from left) and Don Motz, Foreign Agricultural Service, second from left.

Yield Estimate Is Cut

THE U. S. DEPARTMENT of Agriculture on Oct. 10 cut its yield forecast for the 1961 soybean crop by almost 10 million bushels, from 720.3 million bushels to 710.5 million, but the crop is still 27% above last year.

USDA noted that rapid maturity cut down the size of beans and scattered dry spots cut into expected production in some states. Some areas had too much rainfall in September, which slowed maturity and hampered harvesting operations.

The average yield of 26.2 bushels per acre is down somewhat from the Sept. 1 estimate but 2 bushels above the previous high of 24.2 bushels in 1958.

Harvest was almost completed in northern areas by the last of October, and harvesting was well under way in the South. In spite of a somewhat later than average harvest season in many northern states, there were no unusual combining problems except for heavy weed infestations in some areas.

Farmers appeared to be storing a larger part of the crop than ever before.

Quality of the harvested crop was generally good, with moisture and foreign material content at least as good as average.

Reports from Soybean Digest correspondents:

Alabama. Ed Purvis, Baldwin Oil Mill, Foley (10-21): 30% harvested. Beans dry, stalk green. Yield average 5 bushels better than last year. On 12,000 bushels purchased 1 day, buying on No. 1 basis at $2.30 base paid $2.2972, best average we ever had. Small stinkbug damage in some fields.

Delaware. R. H. Cole and W. H. Mitchell, University of Delaware, Newark (10-19): Many of the early fields are high in purple stain and pod and stem blight. This should make certification difficult.

Iowa. Glen Pogeler, North Iowa Cooperative Processing Association, Mason City (10-23): Beans average quality. This movement of beans to date is the smallest I have ever seen. I will guess about 50% of crop under loan.

Kansas. B. E. Henline, Cargill, Inc., Wichita (10-23): Good quality beans. Some damage due to flooding due to Hurricane Carla. 40% to 50% will go into storage for price support.

Minnesota. John W. Evans, Montevideo (10-16): Minnesota will have a big soybean crop, but combining in many areas has revealed that high production areas are spotted and high yields are not as general as believed 6 weeks ago.

Mississippi. Harris Barnes, Jr., Clarksdale (10-22): Yields from 10 bushels to 50 bushels per acre. Late beans, Lees, just beginning to move. Majority of crop is Lee. As Dr. E. E. Hartwig, Delta Experiment Station, says, "Must have damn good reason to plant anything other than Lees."

Missouri. Jim Pitts, St. Joseph (10-16): I fertilized 10 acres in the center of a 30-acre field with 200 pounds per acre of 5-20-20 disked in 2 days prior to planting. Yield was increased 7 to 8 bushels per acre.

Glen Myers, Memphis (10-24): Fields that look like 40 bushels are making 25 to 30 bushels. This is due to small beans and some pods failing to fill caused by drouth in July and August.

North Carolina. George E. Spain, agronomy extension specialist, Raleigh (10-23): Lack of moisture on late beans may reduce total yield to somewhat less than October estimate. Most beans combined are early varieties such as Hill.

SOYBEANS FOR BEANS, October 1961
Crop Reporting Board, SRS, USDA

	Yield per acre			Production		
	Average 1950-59	1960	Indicated 1961	Average 1950-59	1960	Indicated 1961
	Bushels			1,000 bushels		
N. Y.	16.4	17.0	19.0	90	51	38
N. J.	20.4	24.5	27.0	615	808	837
Pa.	18.4	23.0	24.0	316	161	144
Ohio	23.2	25.0	28.0	28,153	37,850	47,488
Ind.	23.6	27.0	29.0	46,838	65,205	82,389
Ill.	24.6	26.0	29.0	107,187	129,298	159,732
Mich.	21.2	21.0	25.0	3,662	4,641	6,300
Wis.	15.4	16.0	18.0	1,139	1,536	2,088
Minn.	19.2	20.0	23.0	37,543	41,800	53,360
Iowa	23.5	26.0	29.0	51,965	67,574	102,022
Mo.	19.6	21.5	26.0	34,995	50,396	65,676
N.Dak.	13.8	13.0	13.5	1,517	2,288	2,727
S.Dak.	14.2	17.0	18.0	2,072	1,700	2,232
Nebr.	21.3	28.0	26.0	2,749	4,172	6,500
Kans.	13.1	22.0	22.0	5,295	12,892	15,444
Del.	18.8	24.0	24.0	2,105	4,536	4,896
Md.	20.4	26.0	25.0	2,949	5,850	6,650
Va.	18.6	22.5	21.5	4,036	7,200	7,568
N. C.	18.4	22.5	23.0	6,556	11,902	13,708
S. C.	13.1	19.5	21.0	3,147	9,730	11,739
Ga.	12.3	17.0	19.0	645	1,275	1,444
Fla.	20.4	26.0	27.0	523	780	972
Ky.	18.8	22.0	24.5	2,615	4,378	4,924
Tenn.	19.0	22.0	24.0	4,650	8,668	9,960
Ala.	19.5	24.0	25.0	1,982	3,192	3,800
Miss.	17.3	22.5	25.0	10,704	20,610	27,300
Ark.	18.4	21.0	23.0	24,003	50,589	59,294
La.	19.0	24.0	23.0	1,980	5,184	5,704
Okla.	13.1	20.0	21.0	682	2,480	3,045
Texas	[1]21.4	27.0	29.0	446	2,025	2,494
U. S.	21.4	23.6	26.2	391,162	558,771	710,475

[1] Short-time average.

Better Meal - Sales Appeal

INCREASE CAPACITY — IMPROVE QUALITY

Rotary Steam Tube Dryer and Rotary Parallel-Flow Cooler processing soybean flakes in large midwestern soybean plant. This Dryer-Cooler team will increase your capacity and improve the quality of your meal.

Let our engineers consult with you on your Pressing, Drying and Cooling problems or send for our catalog D. For quick reference consult your Chemical Engineering Catalog.

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ROTARY COOLERS
Water and Air

Useful reports, circulars, articles; for a complete list of experiment station publications and books relating to soybeans write Soybean Digest, Hudson, Iowa.

Global Protein Research

MILLIONS OF infants and children suffering from malnutrition, parasites, and infections make up the most conspicuous segment of that half of the world's population represented to be underfed or malnourished.

A volume has been published by the National Research Council of the National Academy of Sciences which records the results of a worldwide research program for development of protein products suitable for infants and children from indigenous resources such as soybeans, cottonseed, peanuts and similar products in countries where protein deficiency is most prevalent. This research program has been conducted by the Committee on Protein Malnutrition with funds provided by the Rockefeller Foundation in cooperation with UNICEF, FAO and WHO.

In August 1960, 33 participants in the research from 18 foreign countries joined with 42 researchers from the United States in a 4-day conference to review the results of the program, to survey the areas of greatest need for further research, and to evaluate the status of knowledge in protein nutrition. The conference was jointly sponsored by the Committee on Protein Malnutrition and the nutrition study section of National Institutes of Health. This volume carries the proceedings of that conference.

The 45 research reports in this volume constitute a comprehensive summary of the status of protein nutrition around the world and the technological problems involved in the development of economical protein foods.

Progress in Meeting Protein Needs of Infants and Children. Publication 843; cloth, illustrated; 596 pages; price $5. Printing and Publishing Office, National Academy of Sciences, National Research Council, 2101 Constitution Ave., Washington 25, D. C.

Look for Lower Soy Production in Japan

IT IS VERY likely that Japanese production of soybeans will decrease rapidly following freeing of soybean imports (which took place July 1), according to Hiroshi Nakamura, a graduate assistant working toward a Ph.D. degree at the University of Illinois and former employee of Hohnen Oil Co., Japan.

Total annual consumption of soybeans in Japan exceeds 1.5 million metric tons, with only about 400,000 tons being produced in Japan. The rest are imported, in recent years nearly all from the United States.

A factor that may adversely affect import of soybeans as well as the total demand for soybeans is the raising of the import duty on soybeans, which also took place July 1. Resumption of trade with Mainland China could also hurt U. S. imports. But this would probably occur only to a limited extent, says Mr. Nakamura, since U. S.

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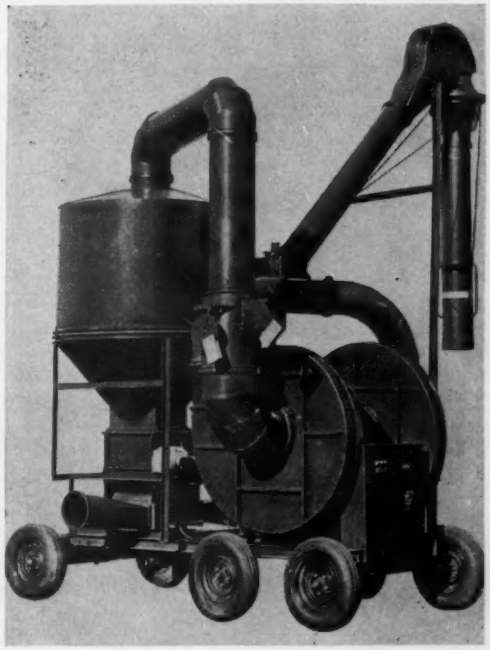
4. Handles any type of seed, hulls, meal, grains, beans, or nuts desired.
5. This unloader, equipped with Phelps 2-stage fan, develops 3.2 PSI and is capable of conveying 2,000 lbs. per minute up to 1,000 feet.



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soybeans are being successfully utilized by both the crushing and food industries of Japan, and in many cases are much preferred because of their physical characteristics and the dependable nature of their delivery.

The Japanese Soybean Market. By Hiroshi Nakamura. Illinois Agricultural Economics, July 1961, Vol. 1, No. 2, pages 7-13. Agricultural Experiment Station, Urbana, Ill.

The Effectiveness of Agricultural Market Development Projects in Japan. Research Bulletin No. 719, May 1961. By Lowell S. Hardin and Leon F. Hesser, Purdue University, Lafayette, Ind. Based on studies made by the authors in Japan in 1960. See also their article page 28, June 1961 Soybean Digest.

184 U. S. Counties Produce 1 Million Bu.

ALTHOUGH soybean production is estimated in 30 states, the 25 states reporting production by counties accounted for about 99% of the U. S. crop in 1960, the U. S. Department of Agriculture reports.

Heavy production is now quite widespread in the 25 states, since 184 counties in 16 of the 25 produced at least 1 million bushels in 1960. A total of 46 counties in nine states produced over 2 million bushels each.

The recent trend has been toward heavier soybean production in southern states. Mississippi County, Ark., was the nation's No. 1 in soybean production again last year, with Champaign County, Ill., in second place.

The nation's 15 leading soybean producing counties in 1960: Mississippi, Ark. 6,156,000 bu.; Champaign, Ill. 5,421,400; Poinsett, Ark. 4,442,000; Iroquois, Ill. 4,438,400; Vermilion, Ill. 4,108,900.

Arkansas, Ark. 3,882,800; New Madrid, Mo. 3,860,000; Sangamon, Ill. 3,815,800; Christian, Ill. 3,780,400; Livingston, Ill. 3,715,300; McLean, Ill. 3,565,100; Stoddard, Ill. 3,505,300; Pemiscot, Mo. 3,256,600; Macon, Ill. 3,170,000; and Crittenden, Ark. 3,145,400.

Soybeans Harvested for Beans by Counties, 1960. Acreage, Yield, Production. August 1961. Statistical Reporting Service, Crop Reporting Board, U. S. Department of Agriculture, Washington 25, D. C.

Quality Soy Sauce From Soybean, Wheat

HIGH-QUALITY Japanese fermented soy sauce is made from equal amounts of soybeans and wheat. The product consists not only of amino acids but also of many flavor ingredients derived from the alcoholic fermentation which is part of the manufacturing process.

Attempts have been made to shorten the long fermentation period (1 to 3 years) and lower the cost of production. During the last decade there has been a growing tendency to make soy sauce by acid hydrolysis, in order to increase the yield and reduce production time.

A chemical method, announced by the Noda Soy Sauce Co., Ltd. (1955), is now being commonly used by soy sauce manufacturers. Even where the fermentation method is still used, soybean hydrolyzates are added to the fermented soy sauce as a flavor booster.

Aroma and Flavor of Japanese Soy Sauce. By Tamotsu Yokotsuka. Advances in Food Research, Vol. 10. Academic Press, Inc., New York.

NSPA Council Issues New 'Soybean Farming'

SINCE THE National Soybean Crop Improvement Council first issued its informative booklet, Soybean Farming, in 1947, over 325,000 copies have been distributed to people of this and other countries who were interested in the various aspects of soybean production as related to the farm.

The booklet has gone through four editions and now the Council has brought out a fifth, fully revised with new illustrations and much new material.

This booklet contains much information on soybean production, and also use, that is not otherwise readily available, at least in so usable a form. It should be in your library if you do not have a copy.

Soybean Farming. 40 pages illustrated. For a copy of the latest edition write National Soybean Processors Association, 3818 Board of Trade Building, Chicago 4, Ill.

Offers Recipe for Vegetable Oil Milk

BECAUSE of the widespread use of diets low in saturated fats, many patients are restricted to the use of skim milk as a substitute for whole milk, or instructed to take vegetable oil as a substitute for animal fat.

A recipe for a vegetable-oil milk is offered.

Palatable Vegetable-Oil Milk. By Theodore W. Houk, M. D. American Medical Association Journal, Vol. 172, No. 13, Mar. 26, 1960, page 1387.

How Crown Multiwall Bags Stop Packaging Losses . . .

Crown Multiwall bags are constructed of tough, kraft paper. They offer many advantages in packaging soy bean, cottonseed and other meals:

STOPS SIFTAGE LOSS. Bag is non-porous. Storage area remains clean and dust-free. Other type bags lose as much as 1% of the contents before the bag is opened.

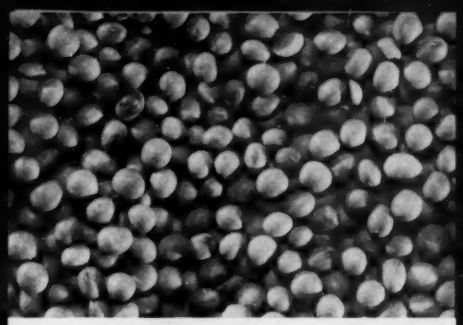
STOPS CLING LOSS. Up to 1 lb. of meal clings to the rough surface of a fabric bag after it is emptied. Meal can't cling to the smooth surface of Crown Multiwalls.

STOPS INSECT DAMAGE. Crown Multiwall bags are inherently resistant to insect infestation. In extreme cases they may be coated with repellents to prevent the entry of weevils or borers. This is not possible with outdated packaging.

PROTECTS AGAINST RODENTS. Contents of textile bags are readily detectable and easily penetrated. Contents of multiwall bags will not sift through to attract rodents.

PROTECTS AGAINST MOISTURE. Provides excellent protection against humidity and moisture because of the low porosity of the paper. Also because the plies of tough kraft paper provide effective layers of insulation.

ECONOMICAL! Initial cost is lower, bags are disposable so there are no costly redemption problems. In addition, multiwall bags lend themselves to high-speed, labor saving packaging. They offer an excellent printing surface. Bags stack well, take less space in storage, are easier to handle, and printing enables identification while stacked. But most important of all, users get every ounce of the meal they pay for—*and in top quality condition.*



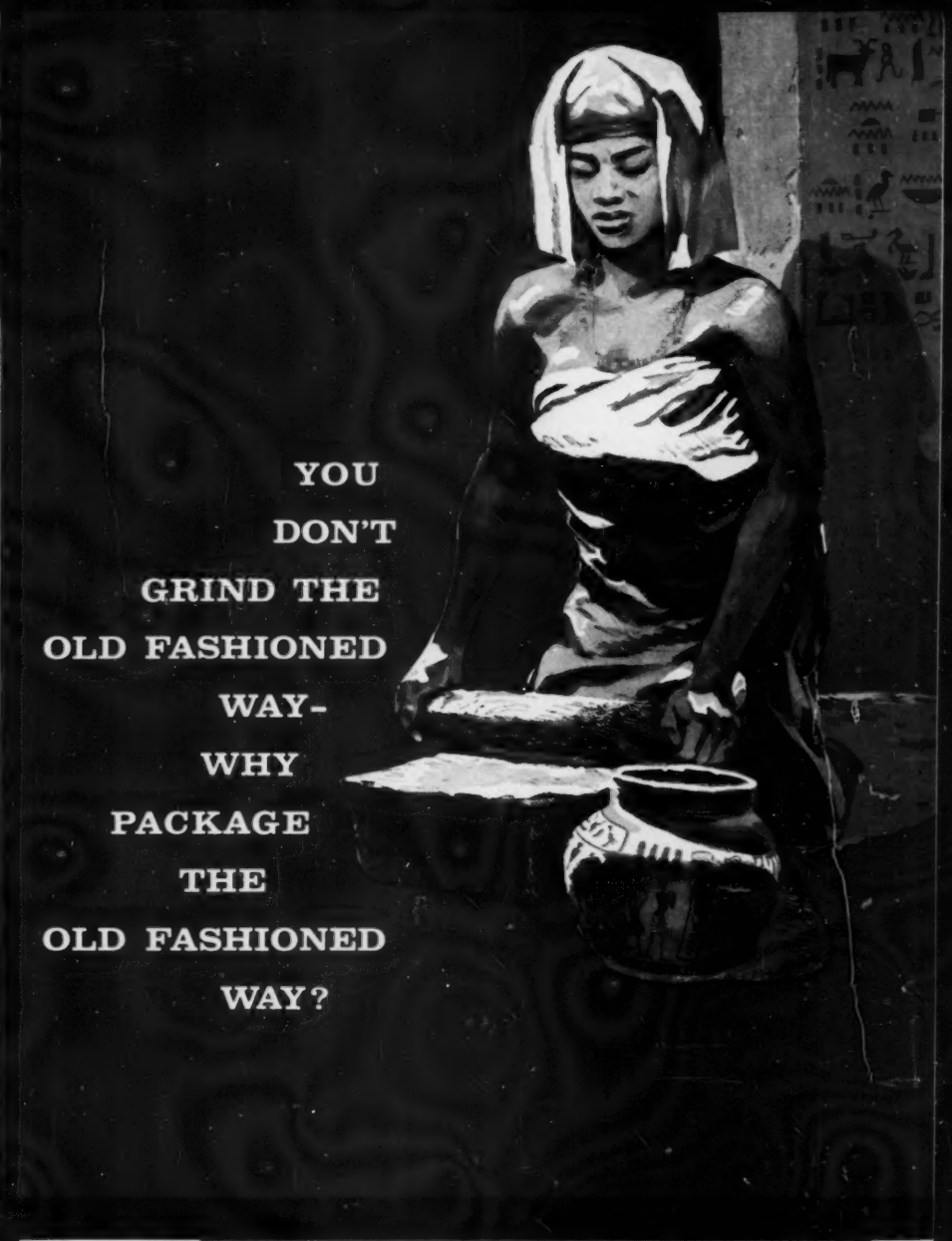
New Crown Multiwall Bags Revolutionize Packaging of Soy Bean, Cottonseed and Other Meal

The grinding of grain into meal and the search for ways to store it is almost as old as man himself—for upon the safe storage of grains from one harvest to the next, man's very existence depends.

Today, a quiet revolution in meal packaging techniques is taking place. No longer are the old methods adequate. Mills are discovering that the most economical way to package meal is also the safest and most effective way—in multiwall bags.

The column at left describes just how superior these newly developed bags are in keeping out dirt and dust, in repelling moisture, mold, insect, rodents—and in reducing packaging costs.

If your present package is a holdover from a former era, we urge you to switch to multiwall bags. Investigate now. Call your supplier or write to Crown Zellerbach, One Bush Street, San Francisco, California. Do it today.



CROWN ZELLERBACH

Multiwall Bag Sales Division

Anderson-Clayton Realigns Operations

Ben R. Barbee, division president in charge of the industrial divisions of **Anderson, Clayton & Co.**, has announced the consolidation and realignment of operations and personnel under his direction.

W. D. Watkins will be vice president and general manager in charge of Paymaster Oil Mill Co. All oil mills and properties now under Western Cottonoil Co. and Southland Cotton Oil Co. are being consolidated into one division to be known as Paymaster Oil Mill Co.

Bob Richardson

A new division is being created to be known as Paymaster Seed Farms, with headquarters at Plainview, Tex., with Harold Loden as manager.

A new department is being created to be known as Paymaster soybean trading department, with R. J. (Bob) Richardson as manager, and with offices located in Lubbock, Tex. A veteran oil mill manager, Mr. Richardson has been with the company 20 years.

Under the division president there is being created a new arm of the division, directing the functions of marketing, advertising and trade development. This new department is to be known as marketing services, John Womble, director, serving all divisions.

Is Chief Engineer for Southern Cotton Oil

Walton Smith, New Orleans, La., formerly assistant to the late J. H. Brawner, is now chief engineer for the **Southern Cotton Oil Division,** Hunt Foods and Industries. Billy L. Shaw, formerly engineer with headquarters at the Southern mill, Greenville, Miss., has moved to New Orleans to be Mr. Smith's assistant.

Roy Castillow, formerly superintendent of the Southern mill, Little Rock, Ark., is now district engineer for the mills in the Mississippi Valley and Texas districts. Frank Gourdon, formerly assistant superintendent at the Little Rock mill has been made superintendent.

Hartzes Celebrate Golden Anniversary

Mr. and Mrs. Jacob Hartz, Sr.

Mr. and Mrs. Jake Hartz, Sr., Stuttgart, Ark. recently celebrated their golden wedding anniversary, with an open house at their home for friends and acquaintances of the family.

On the preceding day, the Rev. James Allen, pastor of Holy Rosary Catholic Church in Stuttgart, celebrated a private anniversary nuptial mass for Mr. and Mrs. Hartz.

The couple have lived in Arkansas all of their married life and have eight children and 28 grandchildren. Mr. Hartz is chairman of the board of **Jacob Hartz Seed Co.** He was a member of the board of directors of the American Soybean Association for some years and is an honorary life member.

Cargill, Inc., Builds Largest Drying Plant

The grain industry's largest and most modern grain drying plant was recently constructed by **Cargill, Inc.,** in south Chicago. The terminal, located at Torrence Ave., has 14-million-bushel capacity.

Cargill's choice of the completely self-contained Aeroglide design culminates several years of planning and investigation. The 6,000-bushel-per-hour drying facility, through a unique feeding arrangement, can be operated at 2,000, 4,000, or 6,000 bushels per hour, depending on drying requirements.

This drier is equipped with a new "Centrilector." This exclusive Aeroglide device separates airborne material from the exhaust air of the drier and deposits it back into the dry grain stream or at other desired locations.

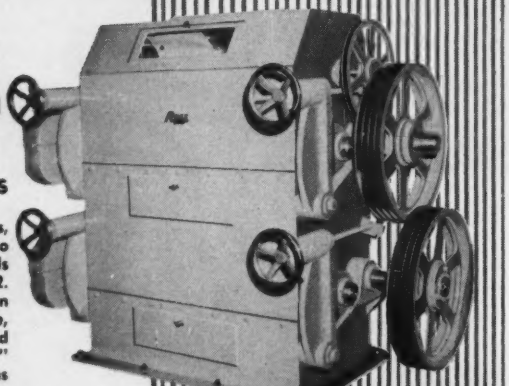
Cargill's giant drier, the largest unit ever installed, required nine freight cars in shipment. Operation of the plant, handling soybeans and grain, was scheduled to begin about Oct. 15.

Get longer life & better service!

with . . .

ROSS
Two-High Cracker
for Hard Grains

Unequalled for soybeans, corn, milo, etc.! Comes also in Three-High, with rolls 10 x 30, 10 x 36 & 10 x 42. Super-rugged construction for hard, 24-hour service, featuring exclusive solid chilled iron "Turn-Tuff" Rolls. Special corrugations for salt, potash, corn, soybeans, etc. All-Steel construction; oversize roller bearings throughout.



Special Soybean Corrugations from 4-5 to 12-14 per inch, or to specifications.

ROSS
MACHINE & MILL SUPPLY, INC.

Roller Mills, Turn-Tuff Rolls, Corrugating
12 N.E. 28 • Ph. JA 8-2132 • Okla. City, Okla.

Ross Machine & Mill Supply, Inc.
12 N.E. 28th St., Okla. City, Okla.

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Please send your FREE literature on the Ross Two-High Cracker.

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Powell Joins Staff Of Butler Mfg. Co.

Butler Manufacturing Co., Kansas City, Mo., has added Charles D. Powell to its agricultural engineering staff.

Charles D. Powell

Since his graduation from the University of Missouri he has been employed as a building design engineer for Doane Agricultural Service. In his new capacity, he will coordinate his efforts closely with the sales staff in developing new concepts for systems centers utilizing Butler products. These complete functional systems will provide centers for processing and handling grain and feed, and housing and feeding livestock on the farm. He will also be responsible for developing similar systems arrangements in the commercial feed and grain storage handling areas.

World Crushers Give Nod to de Boinville

C. A. C. de Boinville, Great Britain, has been nominated by the consultative committee of the **International Association of Seed Crushers** to succeed the late Guy Chipperfield as president of the Association.

C. A. C. de Boinville

Mr. de Boinville is a vice president of the Association and is deputy chairman of Unilever's United Kingdom milling group.

Educated at Radley and at Wadham College, Oxford, where he took an honors degree, he joined Unilever in 1936. He became a director of British Oil & Cake Mills Ltd. in 1951. He was appointed vice chairman of BOCM and a member of the Unilever UK milling group in 1959.

Merger of Day and Hart-Carter Co.

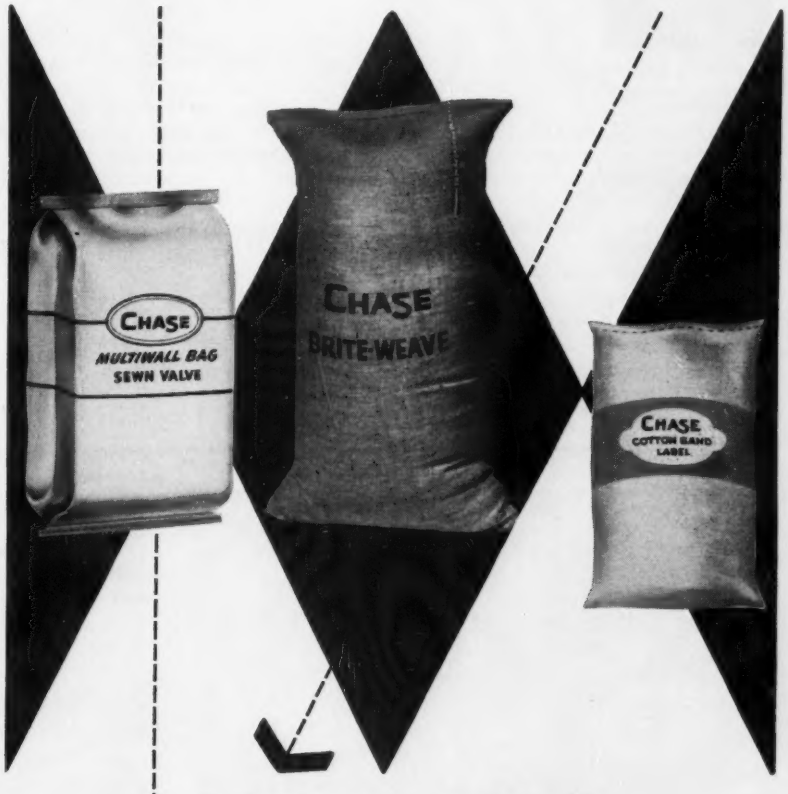
A. B. Osgood and P. E. Henseler, presidents of the Day Co., Minneapolis, Minn., and the **Hart-Carter Co.**, Peoria, Ill., respectively, announced the merger of the two companies effective Oct. 6.

Hart-Carter Co. will be the surviving company. The Day Co. will function as a division of Hart-Carter and Day's present subsidiaries will retain their names and will operate as subsidiaries of Hart-Carter. No major changes in operating policy or personnel of either company or subsidiaries are contemplated.

Hart-Carter Co. manufactures farm machinery components and has been active in the farm implement field for 72 years. The company also has a 50% interest in the Simon-Carter Co., Minneapolis, Minn.

The Day Co., founded in Minneapolis in 1881, is one of the nation's leading manufacturers of high efficiency dust control, pneumatic conveying and bulk storage equipment, as well as grain driers.

Day's subsidiaries, the Day Sales Co. and the Day Co. of Canada, Ltd., handle all Day equipment and systems except grain driers; and Daycom, Inc., another subsidiary, handles the sale of all Arid-Aire grain driers throughout the world.



DEPENDABILITY

IN BAGS FOR YOUR SOYBEAN MEAL

CHASE BAG COMPANY

For safe shipment—low cost—in bags easy to fill, close, stack and store... always insist on *Chase* dependability. Make a single call, order any or all—any type, any size, any quantity.

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CHASE BURLAP

General Sales Offices
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32 Bag Plants and Sales Offices coast to coast—a Nationwide Staff of Bag Specialists.

Over 100 Years of Bag-Making Progress.

George Dietz Joins Continental Grain

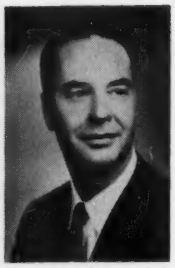
George J. Dietz, director of the European office of the Farm Bureau Trade Development Corp., Rotterdam, has been named by Michel Fribourg, president of **Continental Grain Corp.**, as director of market development.

George J. Dietz

Mr. Dietz will work toward expanding both domestic and export markets. He joined Continental at the New York executive offices Oct. 15.

Mr. Dietz, 38, has also served as director of international affairs in the American Farm Bureau Federation's Washington, D. C., office since he joined the staff in late 1955; and has had 7 years of foreign service with the U. S. State Department. He was assistant agricultural attache in Argentina, and agricultural attache in Norway and the Netherlands. He was also food and agricultural officer for the U. S. Foreign Operations Administration.

A. L. Saltzman



Paul D. Garvey

Garvey Succeeds Saltzman at Esso

Paul D. Garvey has been named manager of solvents sales by the Esso Standard region, **Humble Oil & Refining Co.** He succeeds A. L. Saltzman, who will retire at the end of the year.

Mr. Garvey has been assistant manager of solvents for Esso since February 1958. He joined Esso in 1946.

Mr. Saltzman will retire after more than 39 years' service. He has headed solvent sales for Esso since 1956.

Purchase Processing Plants from Textron

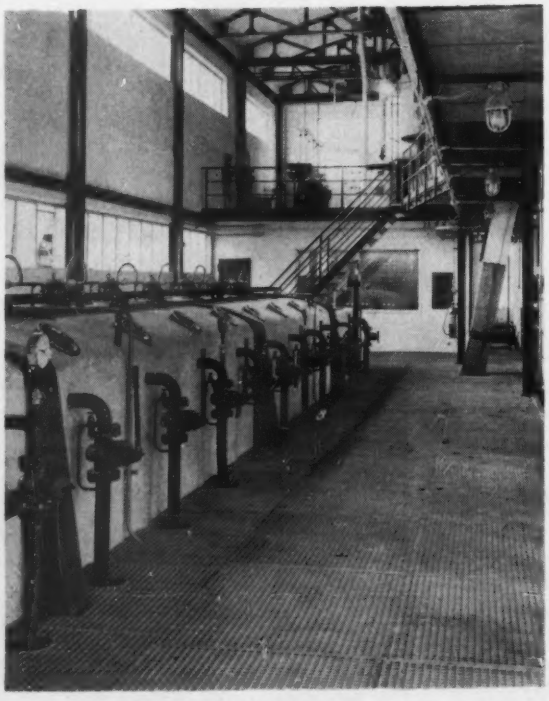
Archer-Daniels-Midland Co. announced that it is leasing the former Spencer Kellogg soybean plant at Decatur, Ill., from Interoceanic Industries Inc. The longterm lease became effective Nov. 1. Interoceanic Industries purchased the Decatur plant recently from Textron, Inc. Textron, Inc., obtained the plant last July when it acquired Spencer Kellogg and Sons Inc.

The sale was the first step in Spencer Kellogg's program to withdraw from the soybean crushing business.

Harold W. McMillen, board chairman of **Central Soya Co., Inc.**, and Fred W. Thomas, division president of Spencer Kellogg, announced that Central Soya had completed arrangements for purchase of the Bellevue, Ohio, soybean crushing plant, and that "Central Soya will proceed almost immediately with the operation."

The company's soybean plant at Des Moines, Iowa, was purchased by Cargill, Inc. All plants are now under operation by the new lessee or owners.

Mitchell, Hutchins & Co., Chicago brokers, incorporated effective Oct. 1. The present partners of the firm will be the officers of the new corporation. William H. Mitchell is chairman of the board; William F. Borland is president; and John L. Swasey is executive vice president.



One of the 150 existing DE SMET Continuous Solvent Extraction and Toasting Plants. Daily capacity: 250 tons/day.

DE SMET

38 Ave. de France

Antwerp, Belgium

- **Complete Automatic Oil Mills**
- **Soybean Preparatory Plants**
- **Continuous Solvent Extraction Plants**
- **Continuous Oil Refining Plants**
- **Continuous Oil Deodorizers**
- **Continuous Oil Bleaching Plants**
- **Continuous Oil Winterizing Plants**
- **Soymeal Toasting & Cooling Plants**

Write or Wire for Complete Information

Cable Address: Extraxsmet Antwerp

Japan's 1961-62 Soy Imports Up 11%

JAPAN. Japan's imports of soybeans in the Japanese fiscal year April 1961 through March 1962 are forecast at 1,250,000 metric tons (45.9 million bushels)—11% more than last year, according to USDA's Foreign Agricultural Service. The United States will continue to be the leading supplier.

Soybean meal imports in fiscal 1961 will be increased to 128,000 tons to meet the sharply increasing demand for feed, according to the forecast. Imports in 1960 were only 12,361 tons.

Soybean consumption is expected to increase in all industries this year and to total 1,440,000 tons (52.9 million bushels), including 200,000 tons of domestic beans. This volume of consumption would be 11% more than in the previous year.

Japan's 1961 soybean crop is forecast at 372,000 tons (13.7 million bushels) from 706,700 acres, an 11% decline in output from 1960. Farmers, faced with the liberalization of imports, diverted some soybean land into other cash crops.

Since soybeans were liberalized on July 1 the liberalization of soybean meal has been debated by government agencies. This action probably will be taken next Apr. 1.

PEANUT CROP. The 1961 peanut crop in Egypt is expected to be larger than last year, according to USDA. Indications are that peanut production has continued the slow upward trend of the last 10 years as a result of the desert reclamation programs now under way. Unofficially, the crop is estimated at 40,300 short tons from 44,600 acres, compared with 38,690 tons from 42,730 acres in 1960.

Commercial peanut production in Mali this year is forecast unofficially at about 100,000 short tons, unshelled, 8% larger than last year.

Senegal's 1961 peanut crop is expected to set a record. Commercial purchases for oil and export, but excluding seed, are forecast at 990,000 short tons, unshelled basis, or 10% larger than the previous record purchases of last year.

YUGOSLAVIA. Prospects for Yugoslavia's 1961 oilseed crops are rather dim because of a prolonged drought, according to USDA. The 1961 output of soybeans is currently placed at 12,000 tons, or less than half the production of a year earlier because of a sharp drop in harvested acreage. Rapeseed and sunflower seed production are also off.

The small outturn of oilseeds this year will further imperil Yugoslavia's deficit position with regard to vegetable oils for edible use and protein meal supplements for livestock feeding. The new 5-year plan adopted earlier this year provided for increased soybean production to 440,000 tons by 1965.

CANADA. Canada's 1961 oilseed crops will be larger than estimated earlier, USDA says. Soybean production is estimated at 7,350,000 bushels compared with 5,675,000 bushels last year. Per acre yield is estimated at 27 bushels, up 5 bushels from last year, according to USDA.

The estimate of rapeseed production has been revised sharply upward from August estimates, but it is still 4% smaller than the 556-million-pound crop of last year. Flaxseed is estimated at 14.9 million bushels, well below the 23-million-bushel crop of last year.

THAILAND. Thailand's soybean production is not expected to increase significantly in the next few years because the quality of beans is not rated high and export outlets probably will continue to be small.

Acreage may have increased slightly in 1961 because of unfavorable prices. Unofficially, the outturn is estimated at 955,000 bushels from about 61,000 acres, up a little from a year ago. In the first 6 months of 1961, only 58,716 bushels were exported—compared with 148,921 last year.

SUEZ SHIPMENTS. Shipments of soybeans from Mainland China through the Suez Canal from October 1960 through August 1961 totaled 9.8 million bushels, less than one-third the quantity that went through the Canal in the same period a year earlier, according to USDA.

But the volume of other oilseeds from all destinations going through the Canal was 6% larger than last year, with the big increases in copra and cottonseed shipments.

EXPORTS TO CHINA. Brazil will sell vegetable oils and other commodities to Mainland China during a 3-year period, and will purchase goods from that country, according to a recently signed trade agreement, says USDA.

Indonesia was to ship 4,000 tons of copra to Mainland China in September, and probably an additional 8,000 tons before the end of the year, according to trade sources.

GERMANY. West Germany's imports of soybeans and soybean oil were off in August as compared with August 1960—53,644 tons of soybeans and 507 tons of oil as compared with 60,952 tons of soybeans and 1,047 tons of oil a year ago, according to K. W. Fangauf, director of the German office of the Soybean Council of America. Meal imports, however, ran well ahead, 5,133 tons in August of this year compared with 1,917 tons in August a year ago.

PERU. Peru's 1961 fish meal exports through May totaled 342,000 short tons, according to the Sociedad Nacional de Pasqueria, an organization of fish meal producers.

Shipments to five countries—the Netherlands, West Germany, the United States, the United Kingdom, and Japan—comprised more than 80% of exports.

EXPORT ORDERS. USDA announced the following purchase authorizations and agreements for U. S. soybeans and soybean products during October:

Oct. 14, an agreement with Pakistan to finance the sale of $621.5 million worth of agricultural commodities to that country under the Food for Peace program and including $127.65 million worth of soybean oil or cottonseed oil, about 300,000 metric tons.

The agreement, for 4 years, is the second largest ever negotiated under Title I of P. L. 480. The largest, with India announced last year, totaled $1.3 billion.

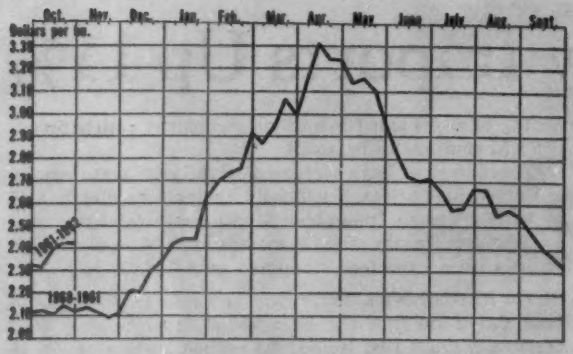
Oct. 20, p. a. 15-87 to Pakistan for purchase of up to $24.1 million worth (about 70,000 metric tons) of cottonseed oil or soybean oil, under the Oct. 14 agreement.

PURCHASES. USDA announced the following purchases during October:

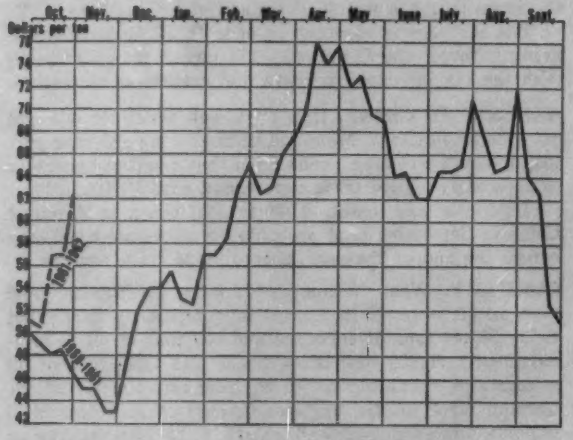
Oct. 17, by Commodity Credit Corp. for delivery Nov. 15 through next Mar. 31, approximately 120 million pounds of vegetable oil shortening, 50 million pounds of soybean salad oil, and 30 million pounds of cottonseed salad oil for donation to eligible agencies for use in assisting needy people outside the United States. Part of the program announced by Secretary of Agriculture Freeman to supply approximately 400 million pounds of vegetable oil products under the Food for Peace program for foreign distribution.

TRENDS AT A GLANCE (WEEKLY CLOSE)

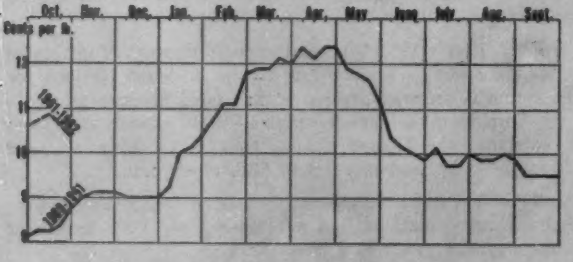
No. 1 Cash Soybeans, Chicago



BULK SOYBEAN MEAL, DECATUR



CRUDE SOYBEAN OIL, TANKERS



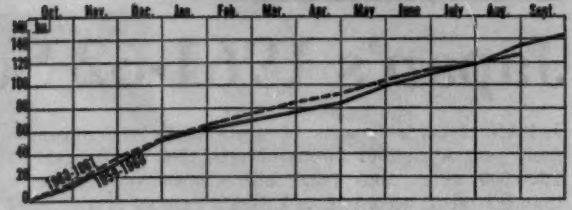
CASH PRICES, OCTOBER 1961*

Oct.	No. 1 yellow soybeans Chicago	Bulk soybean meal Decatur	Soybean oil Decatur	Cottonseed oil Mississippi Valley	Coconut oil Pacific Coast	Lard Chicago
2	$2.32¾	$51.00	$.10⅜	$.12	$.11	$.0780
3	2.35¾	51.50	.10⅞	.12⅛	.11	.0780
4	2.34¾	51.50	.11	.12⅛	.11	.0797
5	2.32½	51.50	.10⅞	.12⅛	.11⅛	.0800
6	2.32	50.50	.10¾	.12	.11⅛	.0800
9	2.32¾	51.00	.10¾	.12	.11¼	.0802
10	2.34½	52.50	.10⅞	.12⅛	.11¼	.0815
11	2.36½	54.50	.10⅞	.12⅛	.11⅛	.0820
12	2.38½	56.00	.10¾	.12	.11¼	.0827
13	2.40	57.00	.10⅞	.12⅛	.11¼	.0847
16	2.39	57.00	.10⅞	.12	.11¼	.0835
17	2.39	57.00	.10¾	.12	.11⅛	.0815
18	2.41½	56.50	.10¾	.11⅞	.11⅛	.0835
19	2.42½	57.00	.10⅝	.11⅞	.11	.0820
20	2.42½	57.00	.10⅝	.11⅞	.11	.0817
23	2.43¾	57.50	.10⅝	.11⅞	.11	.0810
24	2.42¾	57.50	.10½	.11⅞	.11	.0810
25	2.43¼	57.50	.10½	.11⅞	.11	.0817
26	2.42	61.00	.10⅜	.11⅞	.11	.0807
27	2.42¼	62.50	.10⅜	.11⅞	.11	.0817
30	2.41¾	62.50	.10⅜	.11⅞	.11	.0812
31	2.41¼	62.00	.10⅜	.12⅛	.11	.0815

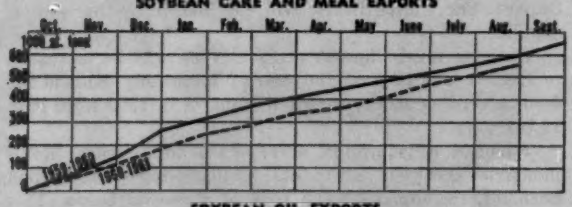
* From Wall Street Journal, Chicago

EXPORTS 1959-60 AND 1960-61

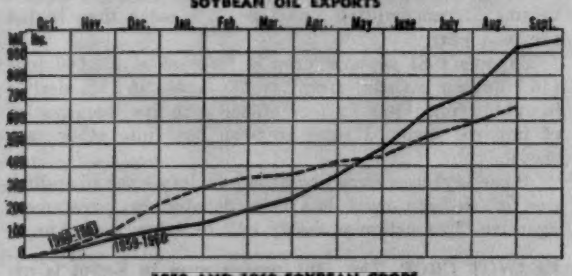
Cumulative year beginning Oct. 1



SOYBEAN CAKE AND MEAL EXPORTS



SOYBEAN OIL EXPORTS



1959 AND 1960 SOYBEAN CROPS

	1960	1959
Season's crush of soybeans	401,547,000 bu.	393,417,000 bu.
Net exports for season	128,499,000 bu.	141,380,000 bu.

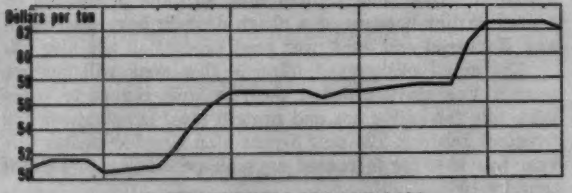
1960 AND 1961 SOYBEAN CROPS

	1961	1960
Oct. 1 carryover of soybeans from previous crop year	5,990,000 bu.	23,218,000 bu.
Total supply of soybeans Oct. 1	716,465,000 bu.	581,989,000 bu.
Total soybeans under support Sept. 30	75,000 bu.	102,000 bu.
Total soybeans inspected for overseas shipment and lake shipments to Canada Oct. 1-27	17,033,905 bu.	12,134,465 bu.

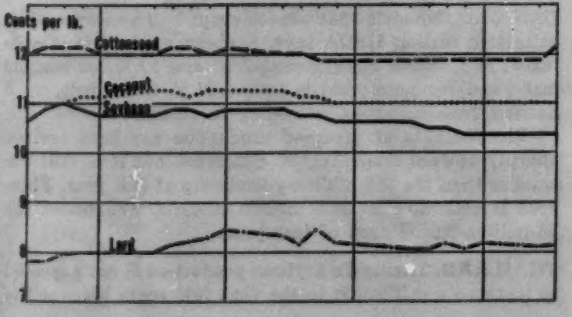
DAILY MARKET PRICES

No. 1 Cash Soybeans, Chicago

BULK SOYBEAN MEAL, DECATUR



CRUDE VEGETABLE OILS AND LARD

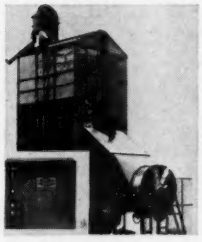


NEW PRODUCTS and SERVICES

BATCH DRIER. Shanzer Manufacturing Co. has announced that a fully automated control panel, combining a number of new operational and safety devices, has been incorporated into their 1961 Models 9 and 18 recirculating batch driers.

According to a company spokesman, the safety control functions include automatic shutdown in case of flame, fan or power failure.

It was also pointed out that automated operation is achieved in both temperature control and moisture reduction. The latter feature dries grain to predetermined moisture content, then automatically turns off the burner but allows fan operation to continue until grain is cooled to desired temperature. The panel then shuts off fan and sounds a signal horn telling operators that batch is ready for removal from drier.



For further information write Soybean Digest 11b, Hudson, Iowa.

STEEL BUILDINGS. Here is a booklet that will give you a new concept of rigid frame steel buildings. It may stimulate your imagination—and will answer important questions about the adaptability of Columbian rigid frame steel buildings to your own needs.

In this 24-page booklet you will find varied examples of steel buildings, including a section illustrating rigid frame steel buildings for grain storage. You will also find details of structural features you should look for—facts about construction, expansion, insulation and architectural and economic advantages.

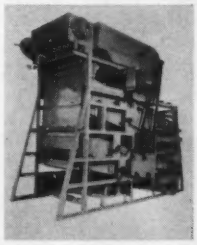
For further information write Soybean Digest 11c, Hudson, Iowa.

DRIER BOOKLET. Aeroglide Corp. announces that a new color folder is available for the asking. The literature illustrates in detail many of the exclusive features of Aeroglide grain driers and by means of an "exploded view" shows how they are combined to offer a new concept in the control of grain conditioning.

The new "Centrilector" dust recovery system is shown. This exclusive feature is said to minimize "hidden losses," dust problems and further reduce the attention required.

For a copy write Soybean Digest 11d, Hudson, Iowa.

GRAIN SCALPER. A. T. Ferrell & Co. announces production of their new 8868-DS 14,000-bushel-per-hour Grain Scalper. It consists of two 4868 scalpers coupled together using a 15 hp motor.



The machine is described as the most versatile terminal-size cleaner ever built by the company. It can be quickly screened to function as three separate machines: (1) double-capacity grain cleaner; (2) quad-capacity grain scalper; and (3) quad-capacity grain sifter.

This Clipper is of extra-heavy steel, eight-screen construction with powerful top air as standard design. A model with added tail air is available. The 4868-DS 7,000-bushel size is sold singly as well.

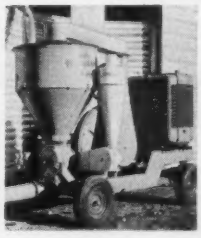
For complete specifications write Soybean Digest 11e, Hudson, Iowa.

DUMP CART. This Arkansas-designed and manufactured self-dumping cart has a 175-bushel capacity and hauls approximately 10,000 pounds at each load.

The cart was designed to convey soybeans directly from fields to granaries. It is equipped with broad, flotation-type tires which travel easily over muddy fields that are common in the late fall during the bean harvest rush in southern areas. Manufacturer is Forrest City Machine Works.

For further information write Soybean Digest 11f, Hudson, Iowa.

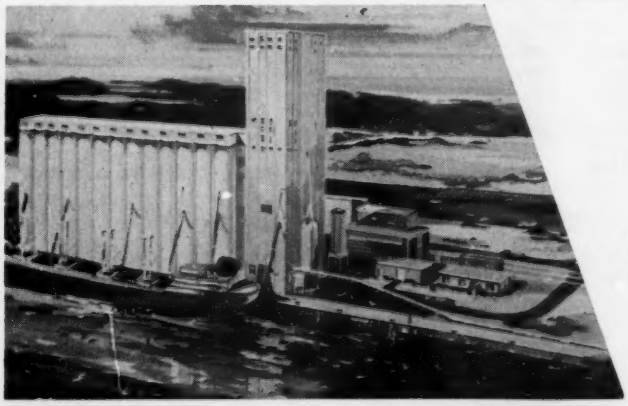
SEPARATOR. The U. S. Patent Office has granted a patent to Myers-Sherman Co. on its new Kwik-Kleen Vacuum Separator, a revolutionary new type of grain cleaner.



Designed by Myers-Sherman as an accessory for the Grainvayor pneumatic conveyor, the Kwik-Kleen cleans the grain as it's conveyed without reducing conveying capacity.

It mounts directly on the Grainvayor and eliminates foreign material by powerful vacuum action. Its permanent mounting eliminates all set-up time required by other types.

For further information write Soybean Digest 11h, Hudson, Iowa.



Jackson County Port Authority

Proudly Announces the Opening
of Their New 2,100,000-bushel Export Elevator

at

Pascagoula, Mississippi

Complete Tariff for Port and Elevator upon Request

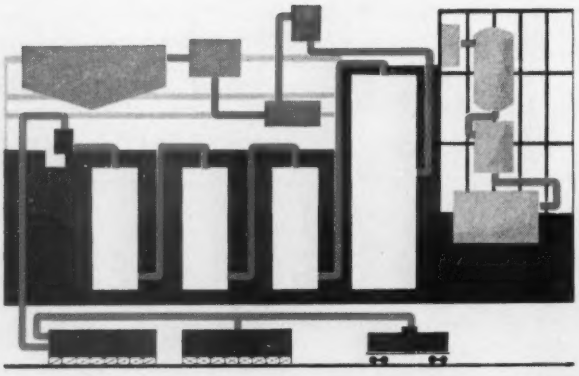
Operated by

STANDARD MILLING COMPANY

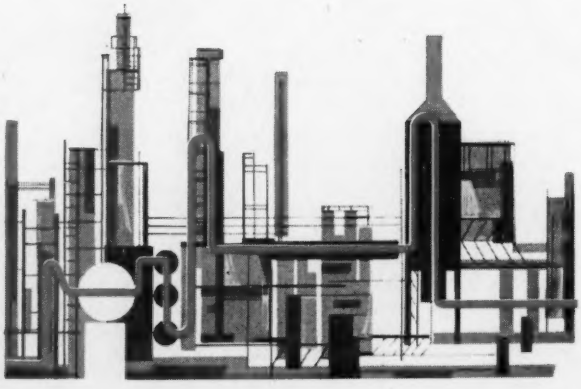
Buyers of Soybeans, Corn, Wheat

BLAW-KNOX

PROCESS -ABILITY!



PROCESS-ABILITY IN GENERAL CHEMICALS *Typical of Blaw-Knox contributions here is the cooperation with a major producer of chlorine and caustic soda, in the development of a new type of Mercury cell design. This cell is being used in several operating plants designed and built by Blaw-Knox. Blaw-Knox has completed more than 100 process plants in the general chemicals field with a value in excess of 250 millions of dollars.*



PROCESS-ABILITY IN PETROLEUM AND PETRO-CHEMICALS *Blaw-Knox has completed nearly 100 refining and processing plants in this broad field. Individual projects include refining of crude; production of petrochemical intermediates; production of monomers, fuel additives and plasticizers. Blaw-Knox offers many licensed processes which are made available by major oil and chemical firms both in the United States and abroad.*

IMPORTANT WORDS TO GROW WITH

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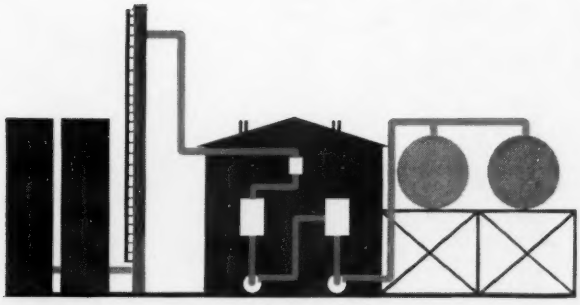

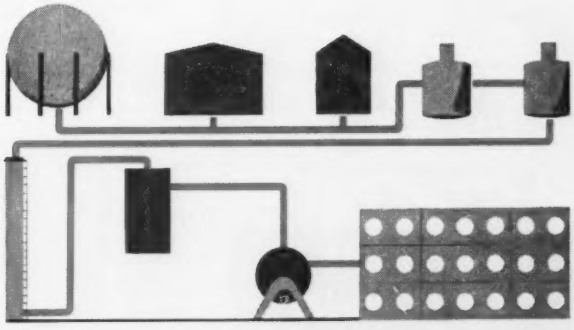

PROCESS-ABILITY IN FATS AND OILS *Blaw-Knox is perhaps best known in the fats and oils industry as the developer of the Rotocel Extractor used for the extraction of oils from oil seeds such as soybeans, cottonseed, corn germ and flaxseed. Installed capacity of Rotocels exceeds 2,500,000 tons-per-year of oil-bearing seeds. Total value of ninety-five Blaw-Knox installations in this field is in excess of 30 millions of dollars.*

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USDA Paints a Rosy Picture

By GEORGE PETER

Washington correspondent for the Soybean Digest

NOW THAT estimates of soybean production can be expected to level off for the season—barring some unusual damage—prospects for the months ahead may become more stable.

Following the sharp October drop of 10 million bushels from the September estimate to 710 million bushels for the season—still a record—the production estimates are expected to vary little. This means attention may focus more on other aspects of the "situation."

What does it all mean—the bigger-than-ever bean crop, the higher price supports? Waving aside fears of the future and the day-to-day problems, the economists we've interviewed, mostly government, say the result is bound to be good. They see it about like this for various segments of the soybean industry:

The grower. USDA sees farmers as averaging $2.30 a bushel or slightly above for the new season. For the first half of the crop last year the farmer's price averaged $2. For the remainder of the crop he averaged $2.21. So the grower this year will be selling 27% more beans at a much higher price.

Oil prices. USDA estimates bean oil will average 11.5c per pound, Decatur, for the season. This compares with an average of 11.3c for last year. With crushing expected to be at least 5% above last year's record 405 million bushels, income from the new season's oil crop should be greater.

On buying, crushers are facing a reverse situation, however. They had to start out buying at around $2.30 compared to last year's early harvest average of $2. But the $2.30 will remain throughout the season, compared to last year when prices soared to a seasonal peak of $3.02 in April.

Soybean meal. USDA has already been able to discount earlier reports of $50-a-ton meal. Meal reached $51 in late September to climb still higher to $62 in October. This compares with $48.50 last October.

What's happened? You are going to have to watch meal prices more carefully. Average is expected around $55 compared to about $60 last year but there's a chance of it becoming a trifle higher. Prices this time of year usually establish the season's low. But carryover meal was low and September crushings were low. Lots of beans were owned by farmers. And a bigger export market is expected later on—50,000 tons greater as USDA sees it.

A further note on meal exports: Japan is expected to liberalize its import regulations for meal by next April. The restrictions on beans were loosened last July.

Exports. Estimates of both oil and bean exports are way up compared to last year. Larger volume all around means bigger returns, according to our economists. Bean oil exports are expected to shoot up to about 2 billion pounds compared to 1.2 billion last season. Soybean exports should zoom to 175 million bushels compared to 130 million bushels.

The General Outlook

USDA's "situation" sizeup reports only a few switches from last month and these are small, chiefly the result of the 10-million-bushel drop in production estimates:

Supplies. Estimates are lowered from 725 million bushels to 715 million bushels, which equals the 10-million-bushel production drop. The grain stocks report of late October showed 1960 carryover of 6 million bushels compared to the 5 million we reported last month.

1962 soybean carryover. USDA has upped its earlier estimate of 60 million bushels to 75 million bushels but doesn't count this much of a change—it is 165-million-oil pounds worth. Another announcement of a big oil donation could knock this back down to 60 or under again. CCC could also stockpile oil, only it isn't considered there is enough in sight yet to warrant stockpiling.

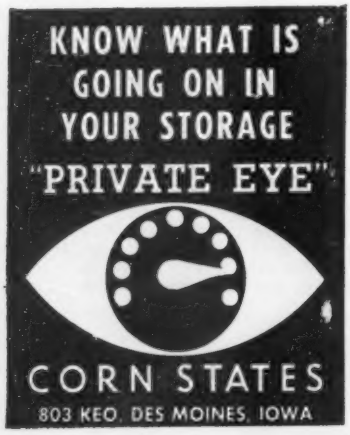
1962 crush. USDA has reduced its estimate of the soybean crush from 450 million bushels to around 425 million. This would have been higher but for the record carryover of 700 million pounds of oil. But tending to offset this are the larger requirements for edible oils scheduled for donation to the needy overseas in the Food for Peace program.

Soybean exports. Estimates unchanged from the 175 million bushels earlier reported. One thing that will be missing from the speculation this time is competition from Red China, whose exports, if any, will continue small. The major importers of U. S. beans, Western Europe and Japan, will continue to need larger supplies. Japan alone will increase edible oil imports 11% with the United States the leading supplier.

Meal exports. USDA has increased estimates to 650,000 tons compared to 600,000 tons last season. Japan and Canada are expected to account for most of the increase.

Trade Problems

To be sure, while all prospects are up, the changes made necessary by government action and world conditions are raising the Old Harry with established ways of business. But in the Army, it was considered a sign of healthy morale when the men were "bitching" or griping and complaining and a few getting put in the guard house for staying off post without a pass. But it was life.



E. F. Johnson

"Soybean" Johnson Passes in Florida

E. F. "SOYBEAN" Johnson, one of the real pioneers of the soybean industry, died at Winter Haven, Fla., Sept. 18. He was 71.

Mr. Johnson was active both as a soybean producer and as a processor. He began growing soybeans in 1912 and grew them on his farms in northern Ohio for close to 50 years.

He was affiliated with three different processing firms, Ralston Purina Co., Louisville (Ky.) Soy Products Co., and Delphos (Ohio) Grain and Soya Products Co.

Mr. Johnson was always very active in ASA and one of the organization's early annual meetings was held on his farm. He was elected an honorary life member in 1949.

He was among those whose efforts and encouragement brought about the founding of the Soybean Digest.

He received his education at the University of Indiana, Purdue University, and Ohio State University. He was a teacher of extension for 7 years and an assistant professor at Ohio State University for 2.

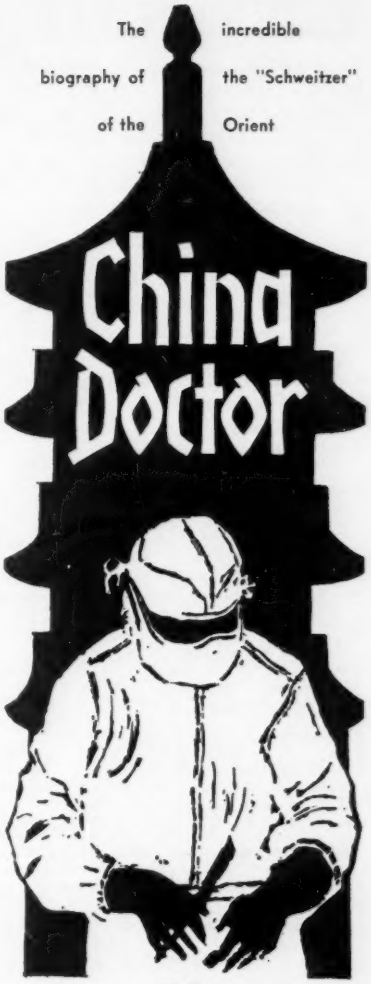
Mr. Johnson is survived by two sons and a daughter.

Sharp Decrease in Ontario Freight Rates

A SHARP decrease in freight rates for soybeans from southwestern Ontario went into effect Sept. 25, according to Ontario newspapers.

The new rates lop off better than 50% from previous soybean rates to Hamilton and Toronto, the destinations of the greatest proportion of Canadian soybeans.

Under the previous rates, soybeans were classed as an oilseed like flaxseed.



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RIVER SITE ELEVATOR LOCATION FOR sale or trade. Ideal location for elevator, in terminal and switching limits of Kansas City. Engineering-borings complete. Opportunity for good location and low-cost operation. Write Ed Payton, Westboro, Mo.

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FOR SALE—RAYMOND FLASH DRYING system with cooling stage. Dried 20,000 lb./hr. soybean supplement. Never used. Best Equipment Co., 1737 W. Howard St., Chicago 26, Ill., AMbassador 2-1452.

MACHINERY FOR SALE—V. D. ANDERson 3-ft. diameter by 15-ft. long steam jacketed cooker/drier. 24-inch single runner head attrition mill. All equipment is in excellent condition. Southern States Feed Corp., P. O. Box 227, Forest Park, Georgia.

CHAROLAIS BULLS. COME SEE THEM or write Bard Seldon, Tunica, Miss.

SEWING MACHINES—ALL TYPES CONveyors, swinging units, portables. New and used. Fischbein, Union Special, Minneapolis. Complete rebuilding and service. McCullough & Co., 8205 Paradise Lane, Kansas City 34, Mo., South 1-2857.

PRATER 75 H.P. DUAL SCREEN PULverizer. Also 100-lb. Richardson meal scale and Union Special 12-inch belt sewing machine. Ray L. Jones, 1923 Hayselton Drive, Jefferson City, Mo.

BEAN STORAGE TANKS—11¾c, 13½c, 15c per bushel. New patents make possible all steel complete at lowest cost. Write Allied Tank, Westboro, Mo., ph. 83, or 1207 Commerce Trust Bldg., Kansas City, Mo., HA 1-0282.

ONE REBUILT 15-BUSHEL RICHARDSON automatic grain scale, $900. Replaced with track scale. Write Carter Feed Mills, Odessa, Mo.

5-GALLON POLYETHYLENE PLASTIC CONtainers, 11-inch diameter by 12 inches high. Top opening/100/box. 21c each, delivered. Quantity discounts. Chemically resistant. Ideal for liquids, feeds, fertilizers, etc. Michigan Industrial Laboratories, 5676 12th, Detroit 8, Mich.

HELP WANTED—FOREMAN. DUE TO ACquisition of new plant, have immediate need for foremen experienced in soybean oil extraction plant, or in an allied industry. Location will be outside of Minneapolis but in the upper Midwest. Send complete resume to G. A. Joines, Cargill, Inc., 200 Grain Exchange, Minneapolis 15, Minn.

CLEAN THOSE BEANS BEFORE STORAGE. Clipper 2248D2A, 3,000 bu. per hr. Immediate delivery. Also 228D, 1,000 bu. per hr. Clipper Randolph driers, any size. All new. Fred Shuck, Shuck Processor's Service, Kirksville, Mo. Ph. MO 5-7565.

WANTED—SCREW CONVEYOR, STEEL boxes, covers, bearings, hangers, etc. Selma Soybean Corp., Selma, N. C.

IN THE MARKETS

EXPORTS. Preliminary data on U. S. exports of soybeans, soybean and cottonseed oils, and soybean and cottonseed cakes and meals, for August 1960 and cumulative totals for October-August in the marketing years 1959-60 and 1960-61, from USDA's Foreign Agricultural Service.

	Unit	August 1960[1]	August 1961	October-August[1] 1959-60	October-August[1] 1960-61
Soybeans	bu.	13,902,397	6,958,135	133,217,059	126,506,503
Soybean oil:					
Crude	lb.	116,422,000	46,613,966	599,395,365	402,964,953
Refined but not further processed	lb.	33,337,292	2,427,467	117,991,818	37,641,945
Refined, deodorized and hydrogenated	lb.	45,909,452	24,459,991	205,041,578	227,575,432
Cottonseed oil:					
Crude	lb.	1,842,140	4,500,486	282,466,696	184,376,190
Refined but not further processed	lb.	26,143,405	7,686,660	166,200,466	117,256,740
Refined, deodorized and hydrogenated	lb.	5,921,831	2,392,901	39,851,215	40,384,302
Cottonseed cake and meal	s.t.	5,841	1,791	130,948	43,928
Soybean cake and meal	s.t.	44,790	42,195	600,893	558,688

[1] Includes any revisions made by the Bureau of the Census.

Soybeans: Inspections for export by coastal areas and country of destination, September 1961 (1,000 bu.)

Lake Ports		Gulf	
Canada	100	Netherlands	514
Netherlands	442	Belgium	824
West Germany	302	West Germany	109
Other	173	Taiwan (Formosa)	155
Subtotal	1,017	Japan	215
Atlantic		Subtotal	1,817
United Kingdom	112	Grand total	3,051
Netherlands	105	Total Jan.-Sept. 1961	74,207
Subtotal	217	Total Jan.-Sept. 1960	87,611

Based on weekly reports of inspections for export by licensed inspectors and does not include rail or truck movement to Canada or Mexico. In some cases, the ultimate destination of the soybeans exported is not shown on the inspection reports. Therefore, the quantity for each country may vary from official Census data which are based on custom declarations.

Soybeans: Inspections for export by ports and areas, September 1961 (1,000 bu.)

Lake Ports		Gulf	
Superior	100	New Orleans	1,559
Chicago	917	Port Allen	258
Subtotal	1,017	Subtotal	1,817
Atlantic		Totals	
Philadelphia	105	September	3,051
Norfolk	112	Jan.-Sept. 1961	74,207
Subtotal	217	Jan.-Sept. 1960	87,611

Based on weekly reports of inspections for export by licensed inspectors and does not include rail and truck movement to Canada or Mexico.

Exports under Title I, Public Law 480, by commodity, July-September 1961

	Unit	September 1961 Metric tons	September 1961 Unit equivalent	July - September 1961 Metric tons	July - September 1961 Unit equivalent
Cottonseed oil	lb.	2,953	6,510,000	4,317	9,517,000
Soybean oil	lb.	14,520	32,011,000	54,579	120,327,000

Foreign Agricultural Service U. S. Department of Agriculture.

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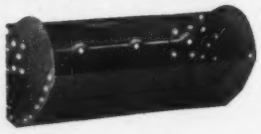

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Oilseed meals: Production, stocks, foreign trade, and domestic disappearance, October-August 1959-60 and 1960-61 (1,000 tons)

	Stocks Oct. 1[1]	Production	Imports[2]	Exports[2]	Domestic disappearance	Stocks Aug. 31[1]
			October 1960-August 1961			
Soybean	82.8	8,889.3	0	547.7	8,244.6	179.8
Cottonseed	137.1	2,315.1	46.3	46.3	2,362.8	89.4
Linseed	29.4	360.8	1.8	28.5	342.4	21.1
Copra	6.0	127.0	19.0	—	150.5	1.5
Peanut	1.8	73.6	—	—	73.8	1.6
Total	257.1	11,765.8	67.1	622.5	11,174.1	293.4
			October 1959-August 1960			
Soybean	58.5	8,523.2	0	600.9	7,886.1	94.7
Cottonseed	97.0	2,318.5	31.6	130.9	2,158.5	157.7
Linseed	33.3	320.3	2.1	54.4	274.3	27.0
Copra	—	120.9	8.0	—	122.4	6.5
Peanut	1.8	58.1	—	—	56.5	3.4
Total	190.6	11,341.0	41.7	786.2	10,497.8	289.3

Dash indicates data is not available. [1] Stocks at processing plants only. [2] Partly estimated. From Agricultural Marketing Service, USDA.

Soybeans: Total inspections for export from Canadian ports September 1961 (1,000 bu.)

Apr.-Sept. 1961 ..... 5,121 Apr.-Sept. 1960 117

Based on weekly reports of inspections for export by licensed inspectors.

PRICES. Average price for soybeans received by farmers, effective parity, and support rates, reported by Agricultural Marketing Service (dollars per bushel).

Average farm price Sept. 15, 1961	Aug. 15, 1961	Sept. 15, 1960	Effective parity Sept. 15, 1961	Av. price as percent of parity Sept. 15, 1961	National average price support rate 1961 crop	1960 crop	1959 crop
2.24	2.49	1.97	2.89	78	2.30	1.85	1.85

Average farm and parity prices from crop reporting board.

Soybean prices compared with market value of soybean oil and meal

	Soybean oil: Average price at crushing plant	Soybean oil: Value from bu. of soybeans[1]	Soybean meal: Bulk price at Decatur	Soybean meal: Value from bu. of soybeans[1]	Value of oil and meal from bushel of soybeans[1]	Market price No. 1 yellow soybeans	Spread between soybean price and value of oil and meal
	Cts. per pound	Dollars	Dollars per ton	Dollars	Dollars	Dollars per bu.	Cents
Sept. 1961[2]	10.5	1.16	59.60	1.40	2.56	*2.27	29
Aug. 1961	10.8	1.19	68.90	1.62	2.81	2.63	18
July 1961	10.9	1.20	65.00	1.53	2.73	2.59	14
June 1961	11.4	1.25	63.85	1.50	2.75	2.73	2
May 1961	12.6	1.39	71.00	1.67	3.06	3.07	—1
Sept. 1960	9.0	0.99	53.75	1.26	2.25	2.07	18

[1] Based on assumption that a bushel of soybeans yields 11 pounds of oil and 47 pounds of meal. [2] Preliminary. * New crop. This table is for statistical comparison only. It does not reflect actual operating margins since prices are simple averages and do not take into account location differentials or actual purchases and sales of soybeans, soybean oil or soybean meal.

FACTORY USE VEGETABLE OILS for July and August 1961. Reported by Bureau of the Census.

Selected edible oils: Production, consumption, and factory and warehouse stocks August 1961 and July 1961 (million pounds)

	Cottonseed oil Aug. 1961	Cottonseed oil July 1961	Soybean oil Aug. 1961	Soybean oil July 1961
Production:				
Crude oils	48.9	48.1	333.9	345.1
Refined oils (once refined)[1]	47.8	55.9	291.9	230.3
Consumption in refining[1]	50.4	59.5	303.9	240.3
Consumption in selected edible and inedible products, total[2]	105.4	86.5	280.3	237.8
Consumption in edible products, total	104.9	86.1	263.5	222.3
Baking or frying fats	28.2	16.3	103.6	57.7
Salad or cooking oil	67.3	61.8	78.6	88.1
Margarine	8.5	7.4	79.6	75.4
Other edible products[3]	0.9	0.6	1.7	1.1
Stocks, end of month, total[2]	182.8	249.8	765.6	*773.2
Crude oils	25.4	29.3	537.3	*555.8
Refined oils	157.4	220.5	228.3	217.4

* Revised. [1] Production of refined oils covers only once-refined oil. Degummed soybean oil is reported as crude oil. [2] Includes hydrogenated fats (vegetable) and other fats and oils "in process," (e.g. refined cottonseed includes stocks of stearin). [3] Includes confectioners fats.

Consumption of vegetable oil foots in fatty acids (million lbs.)

Total consumption[1] August 1961	1960	Cum.: Jan.-Aug. 1961	1960	Used in fatty acids August 1961	1960	Cum.: Jan.-Aug. 1961	1960	Percent used in fatty acids August 1961	1960	Cum.: Jan.-Aug. 1961	1960
11.6	12.4	89.6	87.5	7.3	8.2	54.1	53.4	63%	66%	60%	61%

[1] Excluding amounts consumed in refining. U. S. Bureau of the Census.

IN THE MARKETS

STOCKS. Soybean carryover stocks in all storage positions on Oct. 1 were estimated at 6 million bushels, the U. S. Department of Agriculture's crop reporting board reported. This small carryover is only about one-fourth the 23.2 million bushels on hand a year earlier and the smallest Oct. 1 stocks since 1956. Most of the stocks were in the off-farm positions and 1.6 million bushels were on farms.

Current stocks indicate a disappearance for the crop year, Oct. 1, 1960, to Sept. 30, 1961, of 576 million bushels. This is from a total supply of 582 million bushels (carryover Oct. 1, 1960, of 23.2 million plus the 1960 preliminary production estimate of 558.8 million bushels). Estimated disappearance for the period includes about 401 million bushels processed for oil, nearly 130 million bushels exported, and seed, feed and losses of about 40 million bushels. Thus, actual disappearance for the crop year totals 571 million bushels which is less than a 1% difference from the indication of production and stocks.

Stocks of soybeans, Oct. 1, 1961, with comparisons (1,000 bu.)

	Oct. 1 av. 1950-59	Oct. 1, 1960	July 1, 1961	Oct. 1, 1961
On farms[1]	4,102	3,404	11,503	1,635
Commodity Credit Corp.[2]	454	843	0	0
Processing plants[4]	1,364	5,381	49,767	1,212
Mills, elev. & whses.[1 3]	6,971	13,590	32,590	3,143
Total	12,891	23,218	93,860	5,990

[1] Estimates of the crop reporting board. [2] Owned by CCC and stored in bins or other storages owned or controlled by CCC; other CCC-owned grain is included in the estimates by positions. [3] All off-farm storages not otherwise designated, including flour mills and terminal elevators. [4] October estimates reported by crop reporting board. July estimates reported by Bureau of the Census.

Soybeans (old crop): Total and off-farm stocks, Oct. 1 and July 1 (1,000 bu.)

	Off-farm total[1]			Total all positions[2]		
	Oct. 1, 1960	July 1, 1961	Oct. 1, 1961	Oct. 1, 1960	July 1, 1961	Oct. 1, 1961
Ohio	137	6,393	208	319	7,339	397
Ind.	363	5,678	553	542	7,634	683
Ill.	2,781	20,964	605	3,654	22,903	864
Minn.	963	7,330	303	1,301	9,002	512
Iowa	10,097	9,315	348	10,725	11,342	551
Mo.	594	*	*	1,093	*	*
S. Dak.	324	90	103	340	158	120
N. C.	474	1,540	98	568	1,897	217
Tenn.	*	5,627	11	*	5,714	54
Miss.	3	630	15	68	836	56
Ark.	6	*	*	60	*	*
Other	4,072	24,790	2,111	4,548	27,035	2,536
U. S.	19,814	82,357	4,355	23,218	93,860	5,990

* Included in other states to avoid disclosing individual operations. [1] Includes stocks at mills, elevators and warehouses, terminals and those owned by Commodity Credit Corp. which are in bins and other storages under CCC control. [2] Off-farm total plus farm stocks.

STOCKS ON FARMS. Stocks of old-crop soybeans on farms Oct. 1 are estimated at 1.6 million bushels, compared with 3.4 million bushels a year earlier, the USDA crop reporting board reports. The record for Oct. 1 was 17.1 million bushels in 1959. The 10-year average for Oct. 1 farm stocks is 4.1 million bushels.

Disappearance from farms during the July-September quarter amounted to 9.9 million bushels. This compares with the record high disappearance of 38.4 million bushels for the corresponding quarter a year ago.

Soybean stocks on farms on Oct. 1 (old crop) (1,000 bu.)

	Average 1950-59	1960	1961		Average 1950-59	1960	1961
N. Y.	6	3	1	Md.	20	19	29
N. J.	8	8	4	Va.	20	60	36
Pa.	15	6	2	N. C.	68	94	119
Ohio	282	182	189	S. C.	18	36	97
Ind.	376	179	130	Ga.	7	12	13
Ill.	735	873	259	Fla.	(1)	--	--
Mich.	41	29	--	Ky.	13	29	--
Wis.	25	46	31	Tenn.	15	42	43
Minn.	781	338	209	Ala.	5	14	16
Iowa	1,172	628	203	Miss.	12	65	41
Mo.	203	499	50	Ark.	41	54	51
N. Dak.	48	25	--	La.	2	45	--
S. Dak.	71	16	17	Okla.	4	8	--
Nebr.	62	35	21	Texas	3	10	10
Kans.	37	46	64	U. S.	4,102	3,404	1,635
Del.	14	3	--				

[1] Less than 500 bushels.

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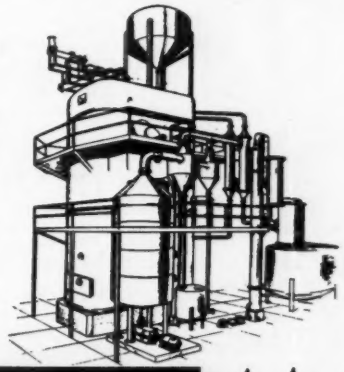

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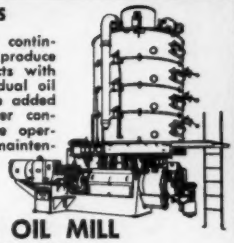

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IN THE MARKETS

PROCESSING OPERATIONS. Reported by Bureau of the Census for August and September 1961.

Primary products except crude oil at crude oil mill locations: Production, shipments and transfers, and stock, September 1961-August 1961 (1,000 tons)

	Production		Shipments and transfers		Stocks end of month	
	September 1961	August 1961	September 1961	August 1961	Sept. 30, 1961	Aug. 31, 1961
Soybeans:						
Cake and meal	529.7	692.4	628.9	722.9	71.9	171.1
Millfeed (hull meal)	12.9	15.4	16.0	15.8	5.6	8.7

Soybeans: Net receipts, crushings, and stocks at oil mills, by states, September 1961-August 1961 (1,000 short tons)

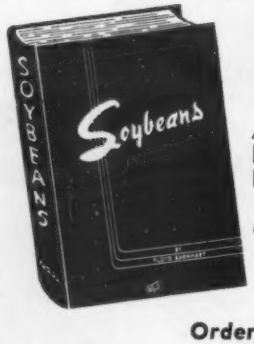
	Net receipts at mills[1]		Crushed or used		Stocks at mills	
	September 1961	August 1961	September 1961	August 1961	Sept. 30, 1961	Aug. 31, 1961
U. S.	570.1	314.3	688.6	901.0	282.7	401.2
Arkansas	(2)	(2)	(2)	30.1	4.5	15.6
Illinois	288.3	121.0	227.0	256.3	138.7	77.3
Indiana	(2)	38.3	67.0	95.0	(2)	26.9
Iowa	64.5	64.9	111.9	140.8	26.3	73.7
Minnesota	34.2	28.5	56.4	73.2	8.1	30.2
Mississippi	(2)	(3)	(2)	4.2	4.6	0.2
Missouri	(2)	(2)	(2)	(2)	(2)	(2)
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)
North Carolina	0.8	(2)	13.8	(2)	2.6	15.6
Ohio	47.1	19.9	61.7	82.5	34.8	49.4
Tennessee	14.7	13.0	53.5	84.8	3.4	42.2
All other	120.5	28.7	97.3	134.1	59.7	70.1

Note: Detail figures may not add to totals because of independent rounding. [1] Net receipts for each state are derived from the quantity of beans crushed and net change in stocks. [2] Included in "All other" to avoid disclosure of figures for individual companies. [3] Receipts exceeded by reshipments out of previously acquired stocks.

Soybean products: Production and stocks at oil mill locations, by states, September 1961-August 1961

	Crude oil (millions of pounds)				Cake and meal (thousands of tons)[1]			
	Production		Stocks		Production		Stocks	
	September 1961	August 1961	Sept. 30, 1961	Aug. 31, 1961	September 1961	August 1961	Sept. 30, 1961	Aug. 31, 1961
U. S.	253.3	333.9	94.0	134.0	542.6	*707.8	77.5	179.8
Arkansas	(2)	11.0	(2)	5.3	(2)	22.9	2.5	3.2
Illinois	83.1	97.0	32.4	46.7	171.0	*196.8	16.3	48.1
Indiana	24.4	36.2	(2)	(2)	54.3	78.9	(2)	(2)
Iowa	40.1	49.8	12.9	24.3	92.2	111.7	10.7	29.3
Minnesota	20.3	26.2	5.8	7.3	44.3	56.5	3.7	3.8
Mississippi	(2)	2.7	(2)	(2)	(2)	5.1	0.3	2.1
Missouri	(2)	(2)	(2)	1.7	(2)	(2)	(2)	(2)
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
N. Carolina	4.6	(2)	(2)	0.7	10.4	(2)	0.7	0.9
Ohio	22.4	30.3	3.2	4.1	49.2	67.0	2.0	3.3
Tennessee	19.9	32.0	5.6	6.6	42.1	65.2	(2)	6.6
All other	38.5	48.7	34.1	37.3	79.1	103.7	41.3	82.5

* Revised. [1] Includes mill feed (hull meal). [2] Included in "All other" to avoid disclosure of figures for individual companies. Note: Detail figures may not add to totals because of independent rounding.



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INSPECTIONS. Inspected soybean receipts, by grades and percent, reported by Agricultural Marketing Service.[1]

Grade	August 1961[2] 1,000 bu.	Pct.	July 1961 1,000 bu.	Pct.	August 1960 1,000 bu.	Pct.	October 1960-August 1961 1,000 bu.	Pct.	October 1959-August 1960 1,000 bu.	Pct.
No. 1	1,231	19	2,105	18	4,867	25	100,288	25	75,394	19
No. 2	3,338	51	6,436	57	10,252	54	184,658	47	200,265	52
No. 3	1,180	18	2,037	18	2,449	13	74,923	19	79,388	20
No. 4	554	9	602	5	1,021	5	27,299	7	22,955	6
Sample	182	3	202	2	589	3	8,721	2	10,391	3
Total	6,485	100	11,382	100	19,178	100	395,889	100	388,393	100

[1] Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,800 bushels. [2] Of the August receipts, 500 bushels were mixed and the remainder yellow soybeans. Inspections of soybeans in August included 1,516,000 bushels as cargo lots, 508,672 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspection by licensed inspectors at all markets.

Grade	Sept.[2] 1961 1,000 bu.	Pct.	Aug. 1961 1,000 bu.	Pct.	Sept. 1960 1,000 bu.	Pct.	Oct. 1960-Sept. 1961 1,000 bu.	Pct.	Oct. 1959-Sept. 1960 1,000 bu.	Pct.
No. 1	4,216	25	1,231	19	4,500	15	104,504	25	79,894	19
No. 2	9,107	54	3,338	51	17,382	58	193,765	47	217,647	52
No. 3	2,448	14	1,180	18	5,387	18	77,371	19	84,775	20
No. 4	909	5	554	9	2,071	7	28,208	7	25,026	6
Sample	354	2	182	3	622	2	9,075	2	11,013	3
Total	17,034	100	6,485	100	29,962	100	412,923	100	418,355	100

[1] Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,800 bushels. [2] Of the September receipts, all were yellow soybeans. Inspections of soybeans in September included 1,461,000 bushels as cargo lots, 1,966,888 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed inspectors at all markets.

MELLORINE. The nation's output of mellorine and other frozen desserts made with fats and oils other than milkfat totaled 4,410,000 gallons during September—1% more than in September a year ago and 30% above the 1955-59 average for the month. The January-September total this year was 9% above the first 9 months of 1960 and 34% above the average.

Production of "mellorine-type" frozen desserts, United States 1961

	1955-59 average[1]	1959[1]	1960[1]	Estimated 1961	Change from: 1955-59 av.	Change from: 1960
	Thousand gallons				Percent	
January	2,012	2,254	2,536	2,850	+42	+12
February	2,188	2,444	2,912	3,100	+42	+ 6
March	2,805	3,338	3,452	4,140	+48	+20
April	3,076	3,601	3,824	4,055	+32	+ 6
May	3,723	4,146	4,343	4,985	+34	+15
June	4,026	4,825	5,329	5,390	+34	+ 1
July	4,324	5,007	4,911	5,285	+22	+ 8
August	4,176	4,709	5,109	5,695	+36	+11
September	3,393	4,140	4,367	4,410	+30	+ 1
9-month total	29,723	34,464	36,783	39,910	+34	+ 9

[1] From enumerations.

TERMINAL STOCKS of soybeans. Includes all soybeans in public elevators including government-owned stocks. By Agricultural Marketing Service (1,000 bushels).

	Sept. 26	Oct. 3	Oct. 10	Oct. 17	Oct. 24
Baltimore	191	188	99	74	380
Chicago	1,198	1,293	1,672	3,977	6,459
Duluth-Superior	68	24	33	80	289
Indianapolis	1	39	94	202	454
Kansas City	24	24	29	141	295
Milwaukee	0	0	0	6	14
Minneapolis	0	0	3	30	185
New Orleans	603	672	537	1,015	847
Afloat	160	80	360	920	320
Omaha-Council Bluffs	0	0	2	36	130
Peoria	9	34	57	229	244
Philadelphia	4	0	0	5	53
Sioux City	99	45	72	187	324
St. Louis	189	166	243	931	1,529
Toledo	83	255	1,132	3,032	3,989
Visible supply	2,629	2,820	4,333	10,865	15,512
Grand totals					
This week	2,629	2,820	4,333	10,865	15,512
Year ago	6,307	8,508	15,740	26,493	34,408
Total Chicago soybean stocks	1,198	1,293	1,672	3,977	6,459

PRICE SUPPORT. Quantities of 1961 crop soybeans put under price support during September and August 1961, compared to 1960 crops put under during September 1960 (bushels):

September 1961	August 1961	September 1960
71,108	0	27,627

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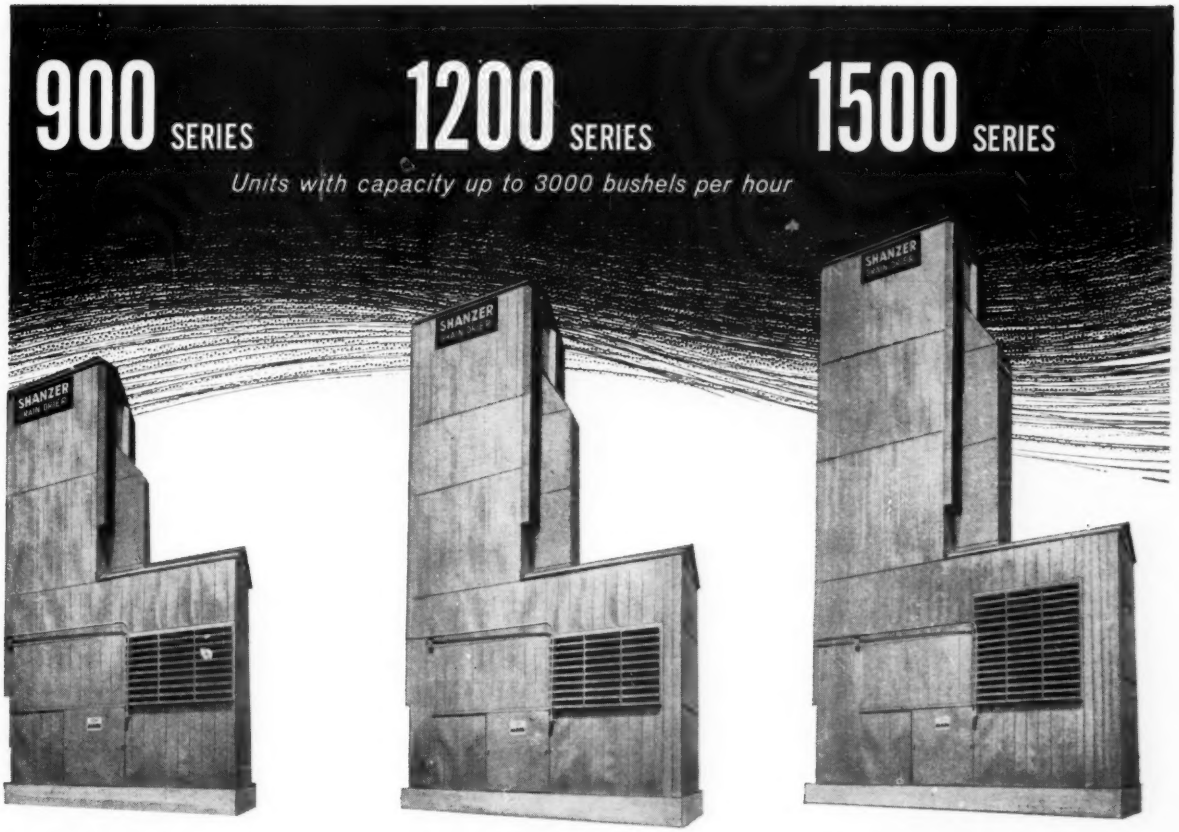

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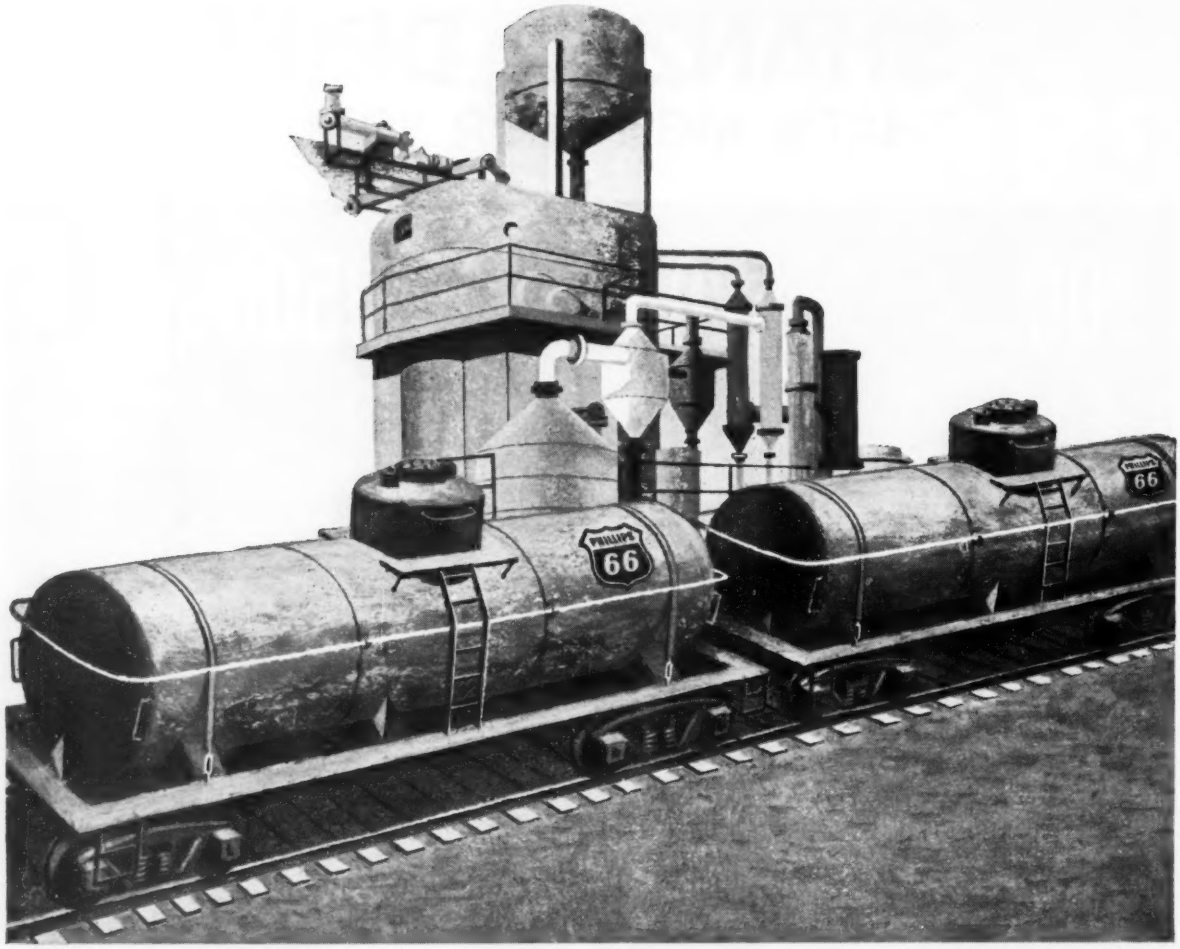

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